



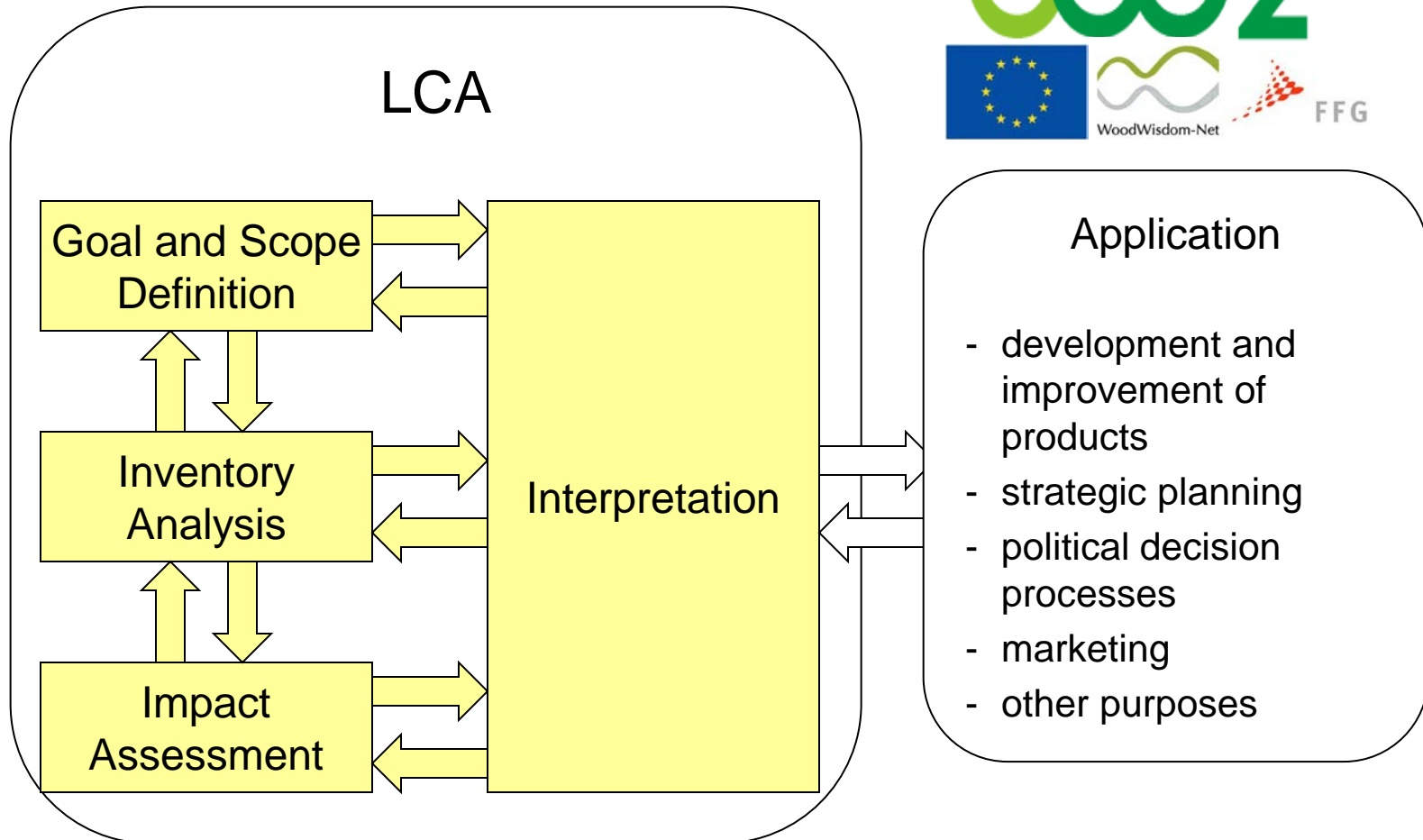


Survey of Allocation Methods in Life Cycle Assessments of Wood Based Products

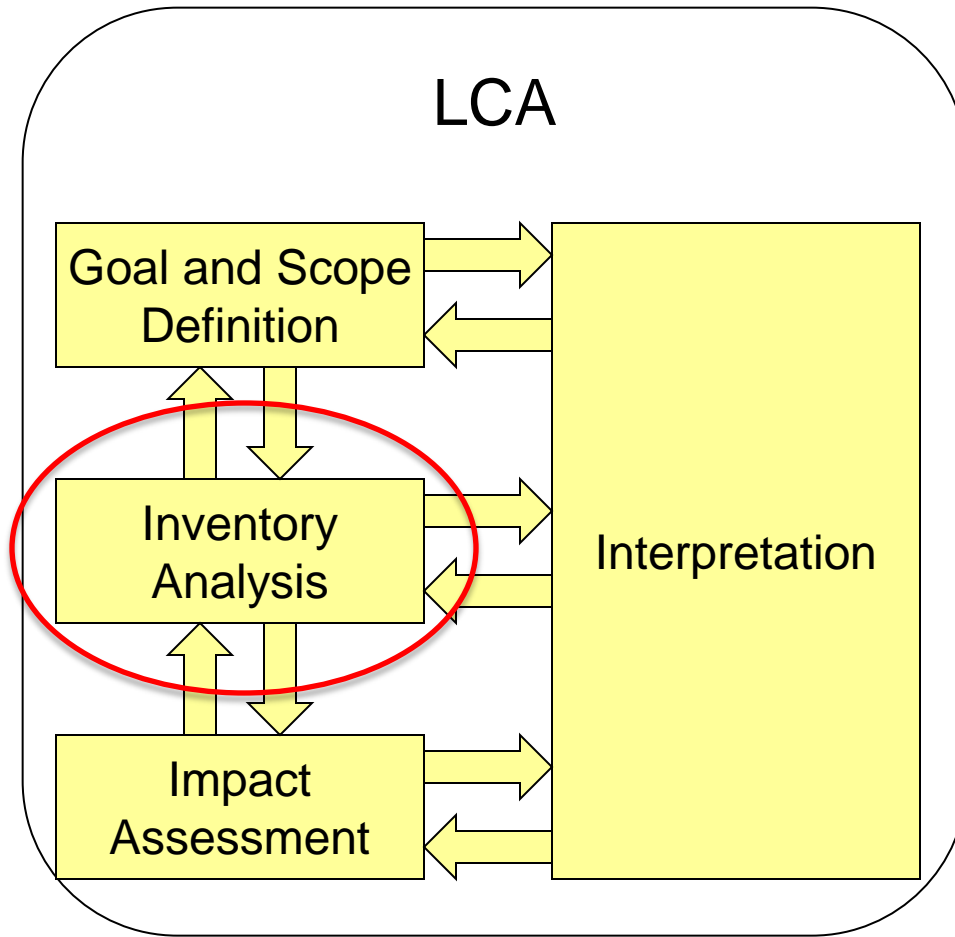
COST ACTION FP1303 1st Conference
23.-24. October 2014

Dr. Franz Dolezal

Principle of Life Cycle Assessment



Principle of Life Cycle Assessment

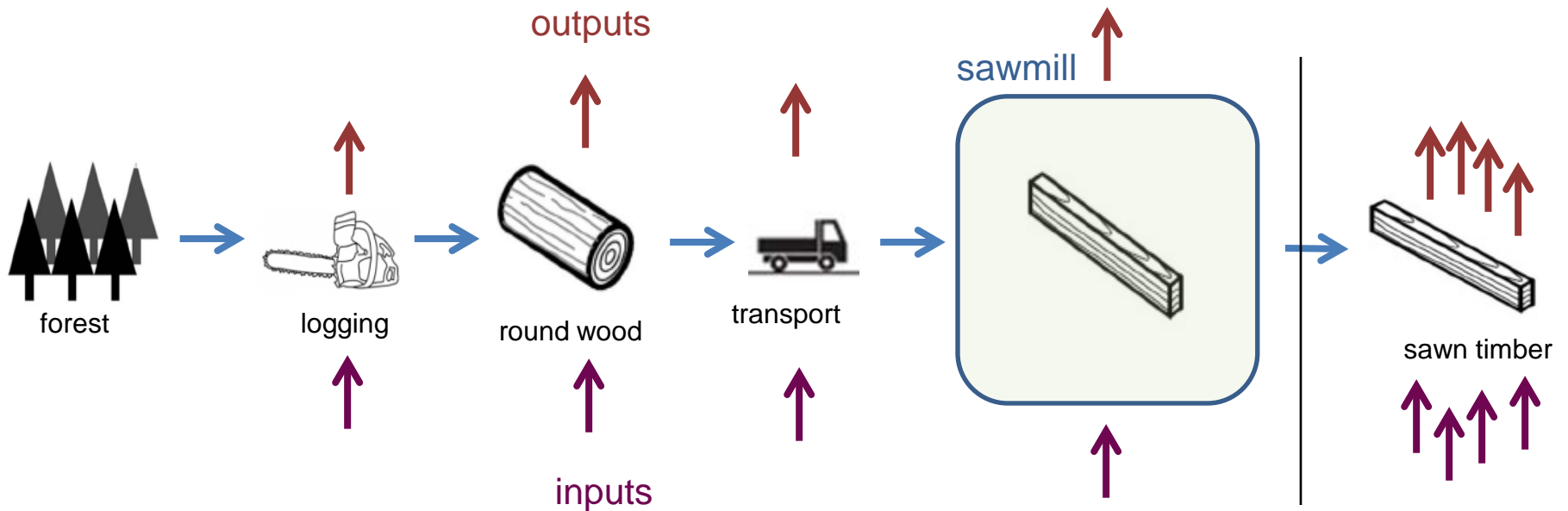


Inventory Analysis

- Compilation of inputs and outputs
- Quantification of inputs and outputs of products throughout their life cycle

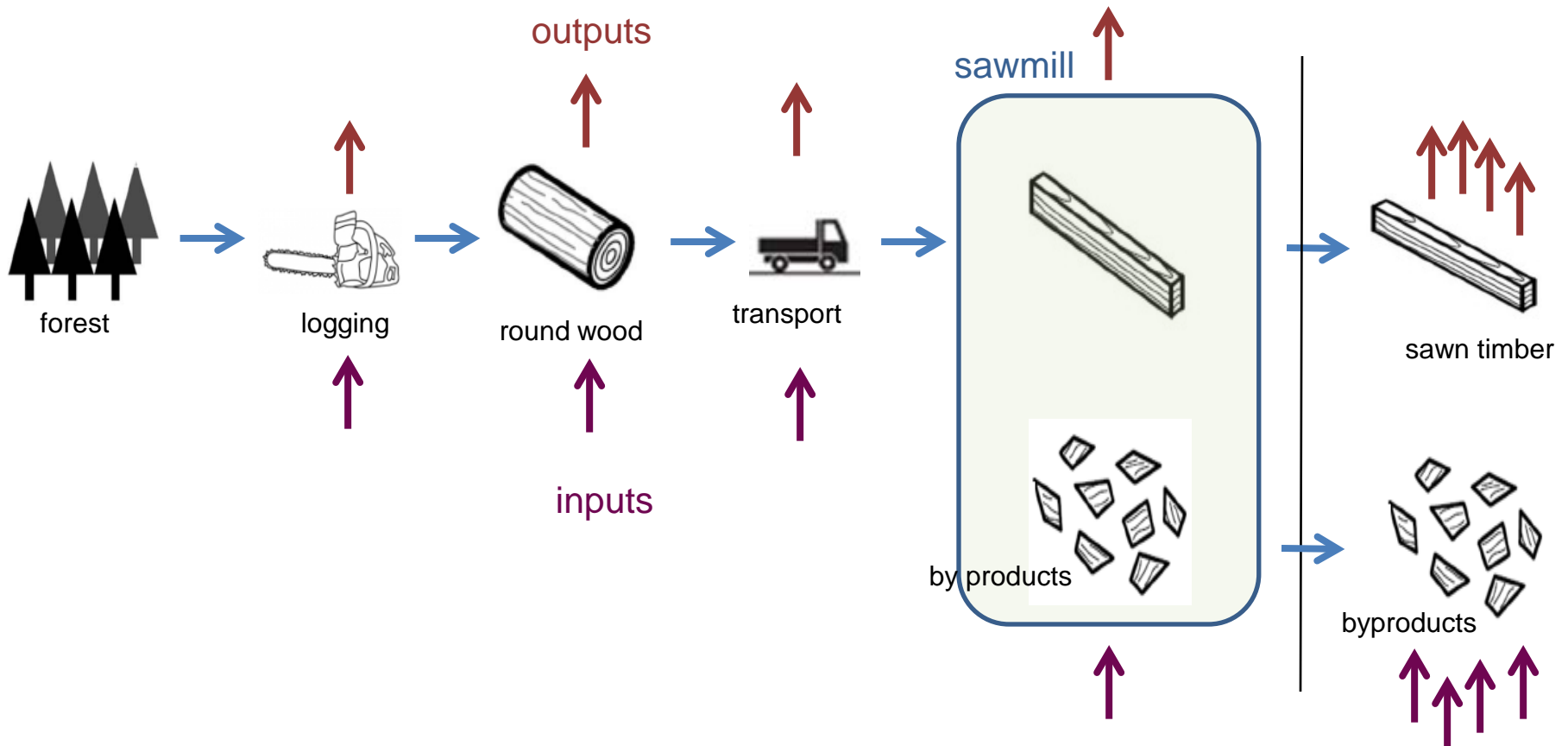
What is allocation?

Partitioning the input or output flows of a process between the product system under study and one or more other product systems



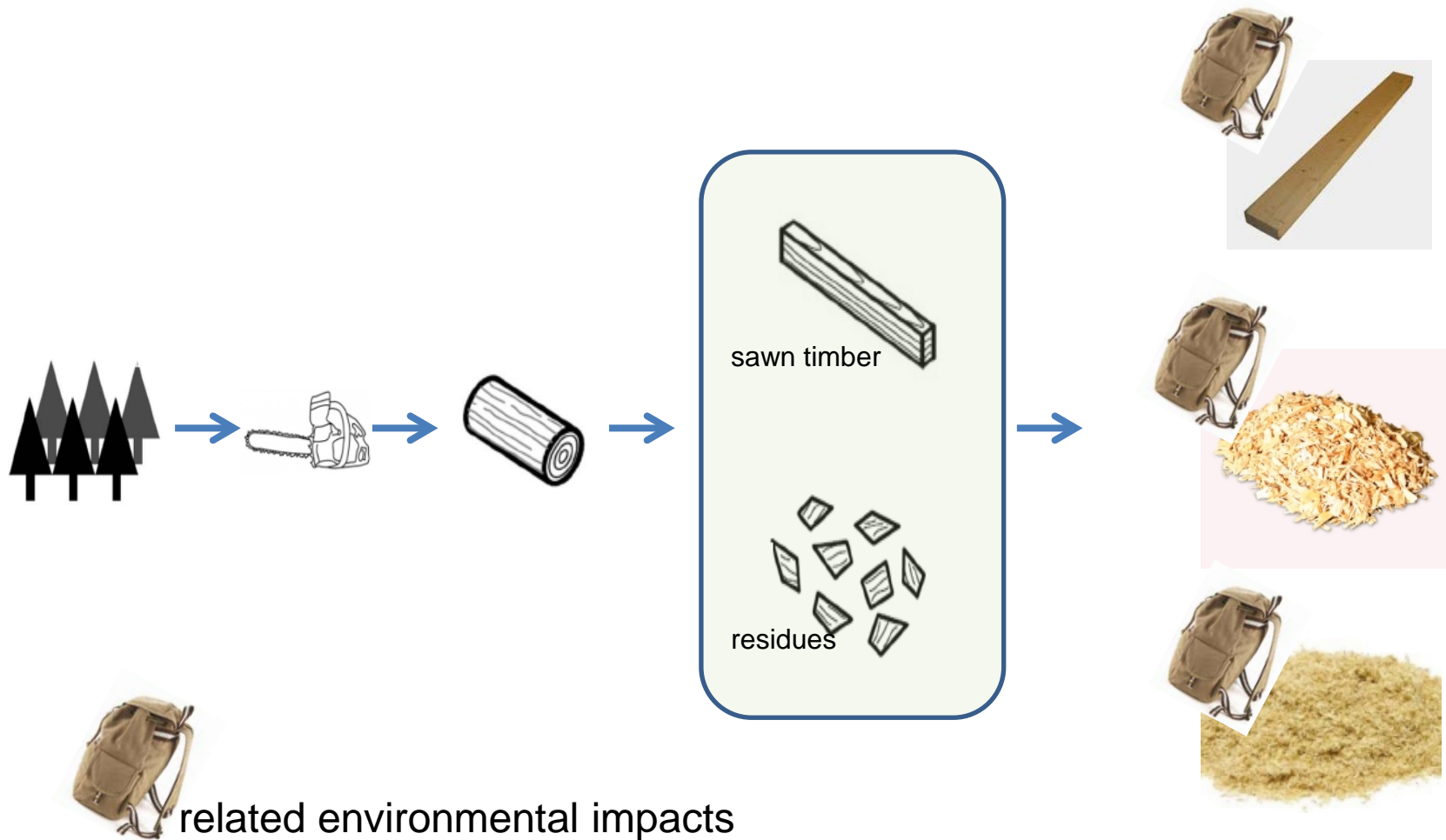
What is allocation?

What about byproducts?



LCA of wood products

Allocation



LCA of wood products

Allocation



Allocation methods

- main product
- physical (mass, volume)
- economic
- other – entropy, exergy, etc.



related environmental impacts

The



example



gold production



The



example

1g

1t



With mass allocation, gold has no environmental impact at all

1 : 1 000 000



LCA of wooden products

Allocation

Allocation methods

- main product
- physical (mass, volume)
- economic
- other – entropy, exergy, etc.

allocation acc. EN 15804 and EN 16485



related environmental impacts



LCA of wooden products

Allocation factor

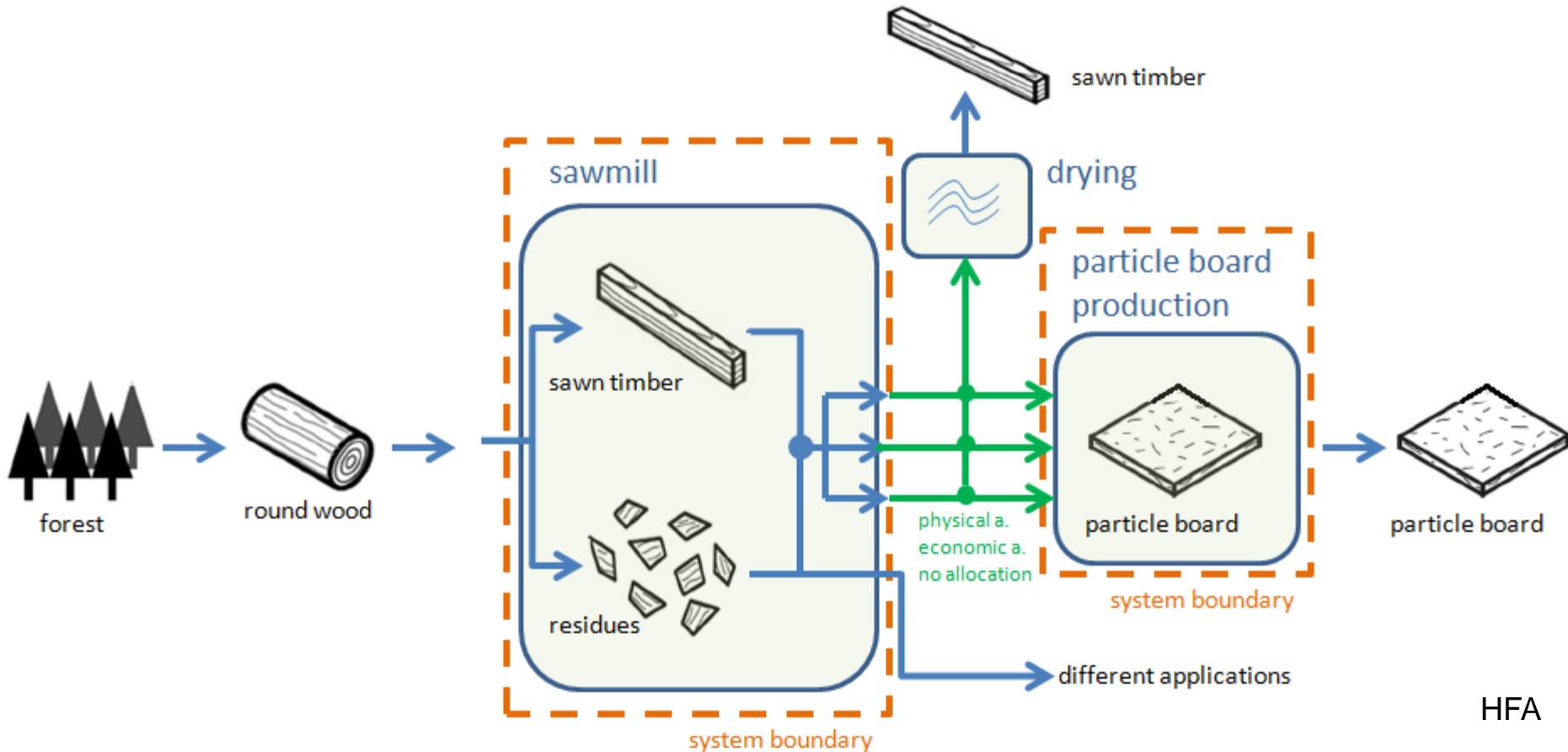
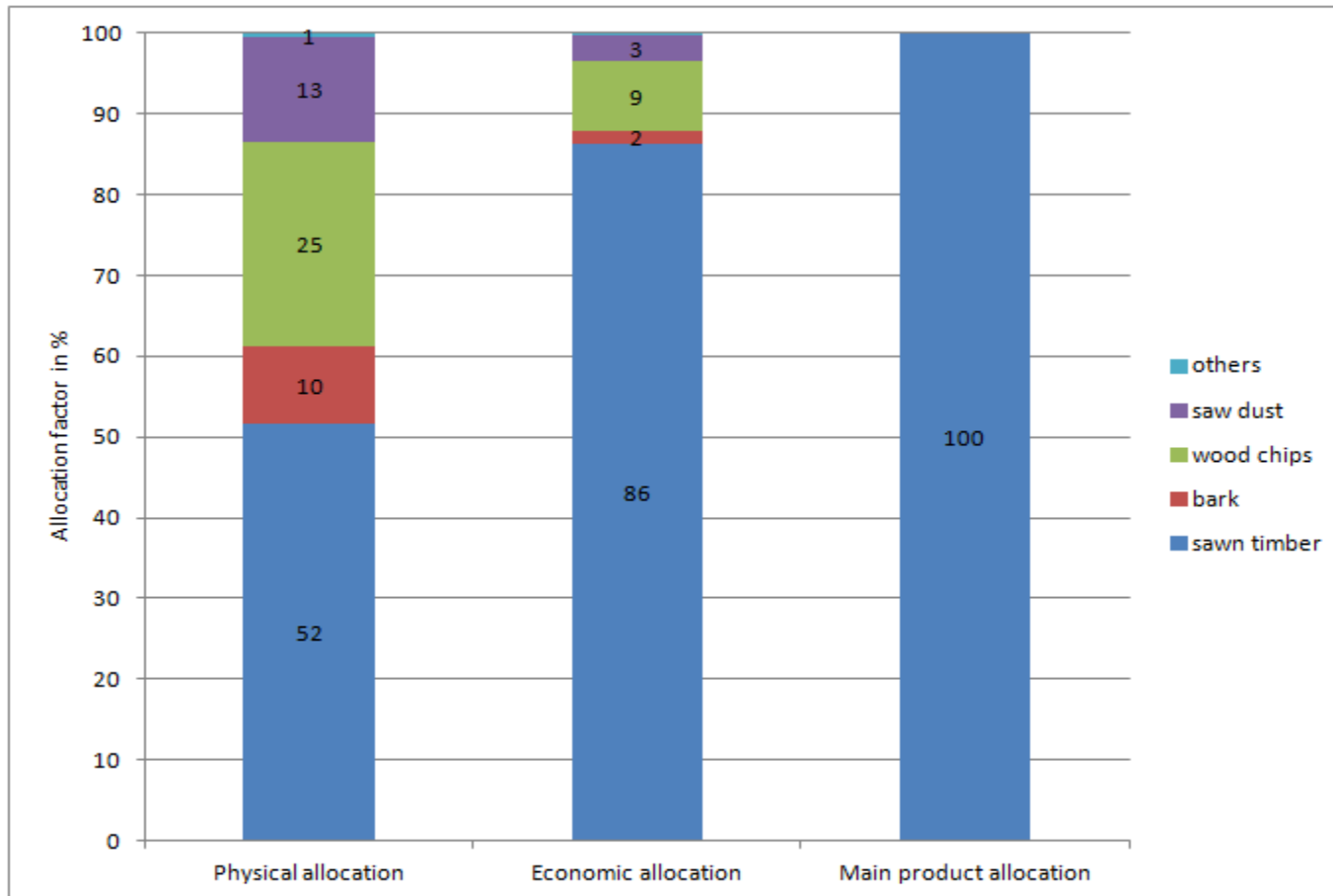


Table of investigations with system boundaries of carried out calculations

LCA of wooden products

Allocation factor

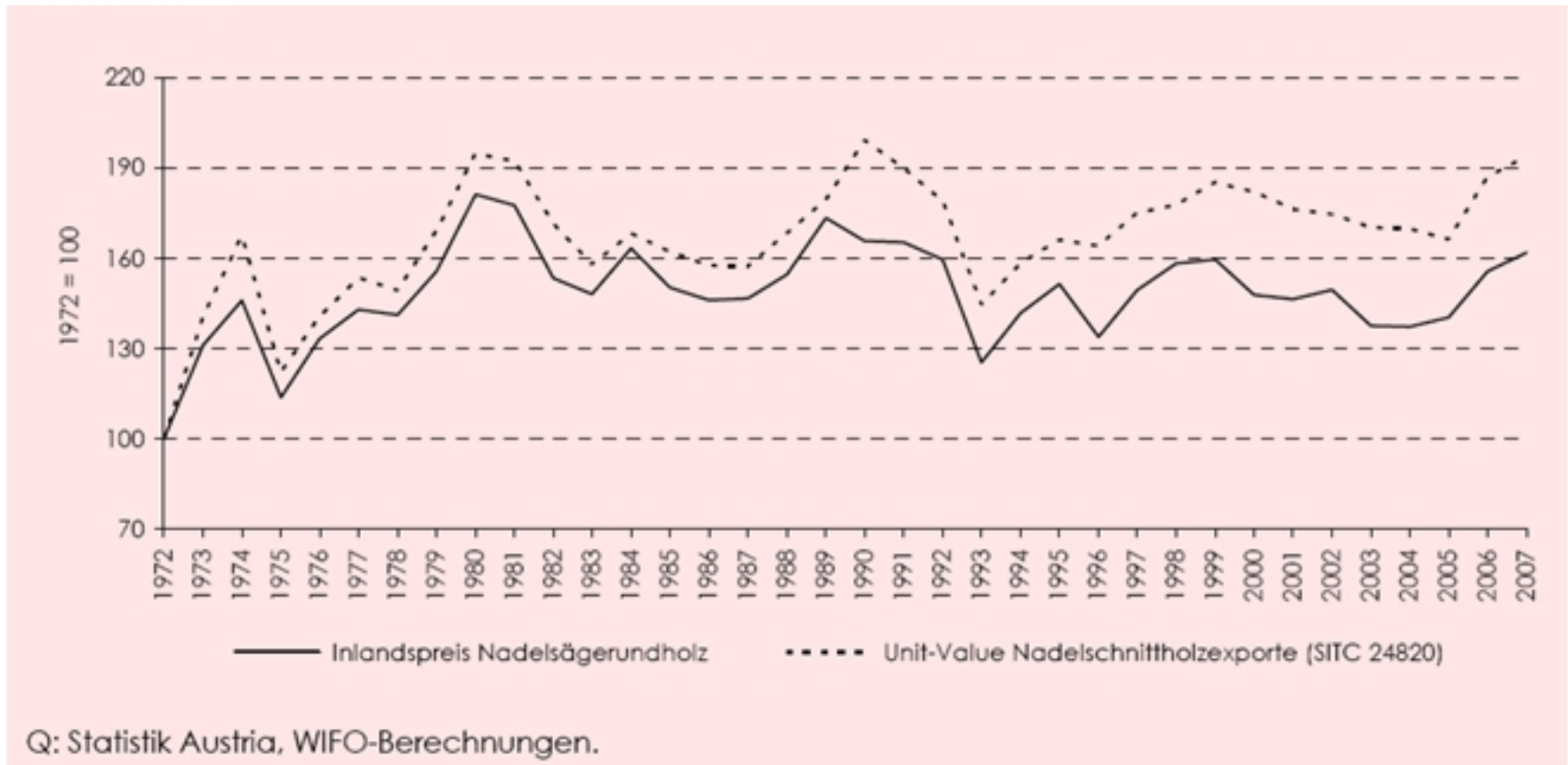


analysis: HFA

Allocation factor in 3 different allocation methods

LCA of wooden products

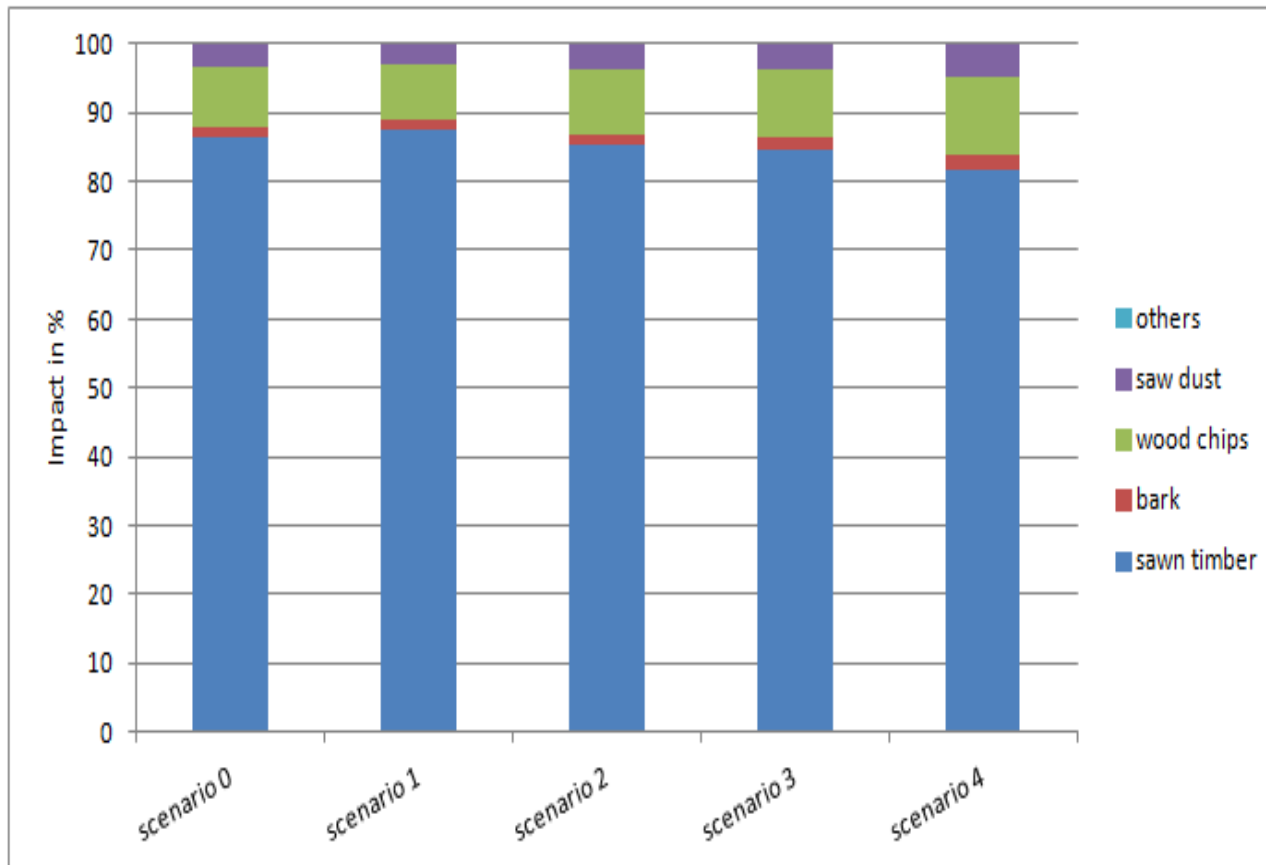
Allocation - prices



Development of sawn timber and round wood prices (Puwein 2008) - Statistik Austria

LCA of wooden products

Allocation - prices



scenarios in Δ %:

0. base scenario

1. st + 10%, residues 0%

2. st + 0%, residues + 10%

3. st + 5%, residues + 20%

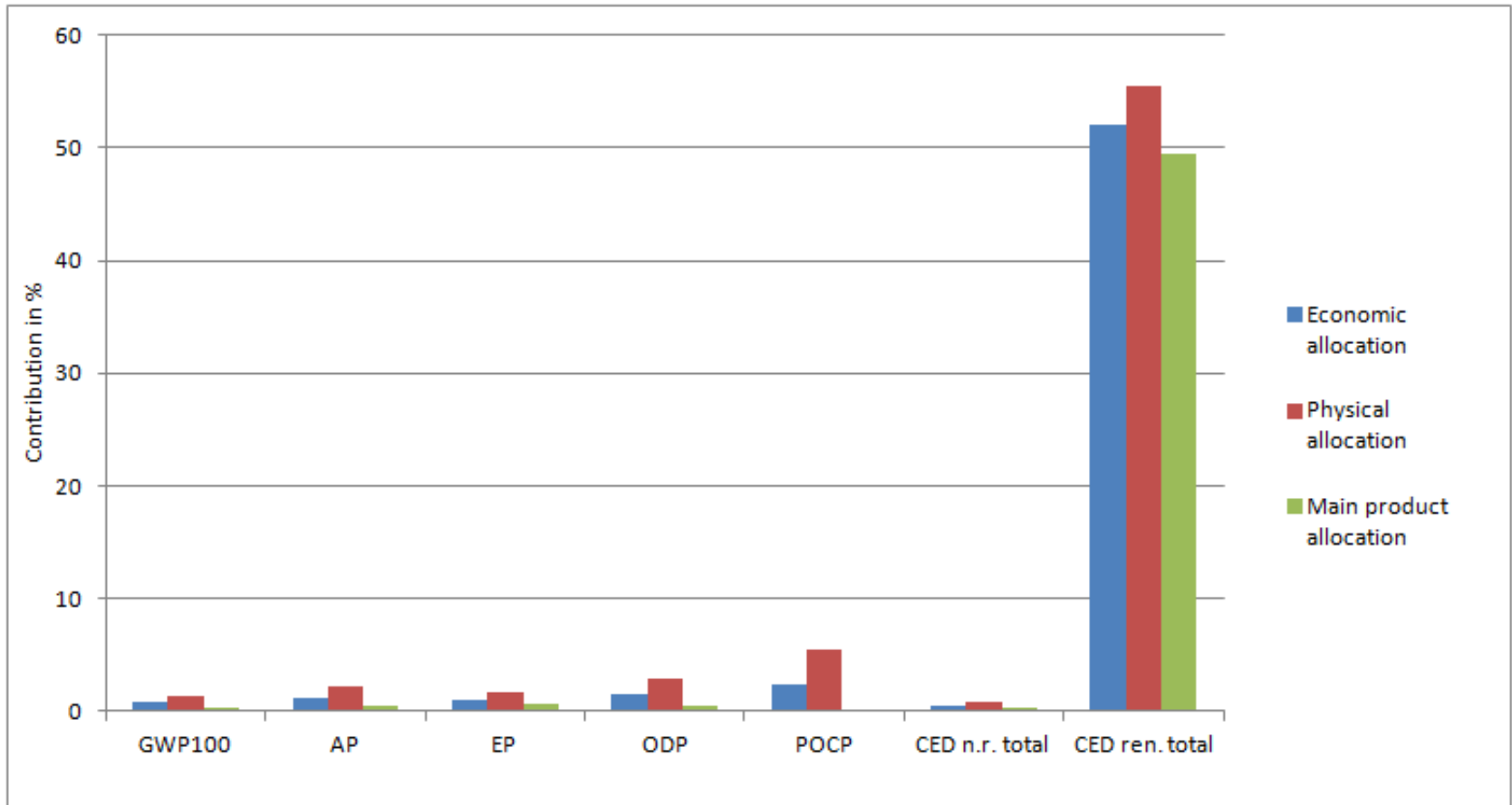
4. st + 5%, residues + 50%

analysis: HFA

Impact of price volatility on allocation factor – economic allocation

LCA of wooden products

Allocation – downstream processes

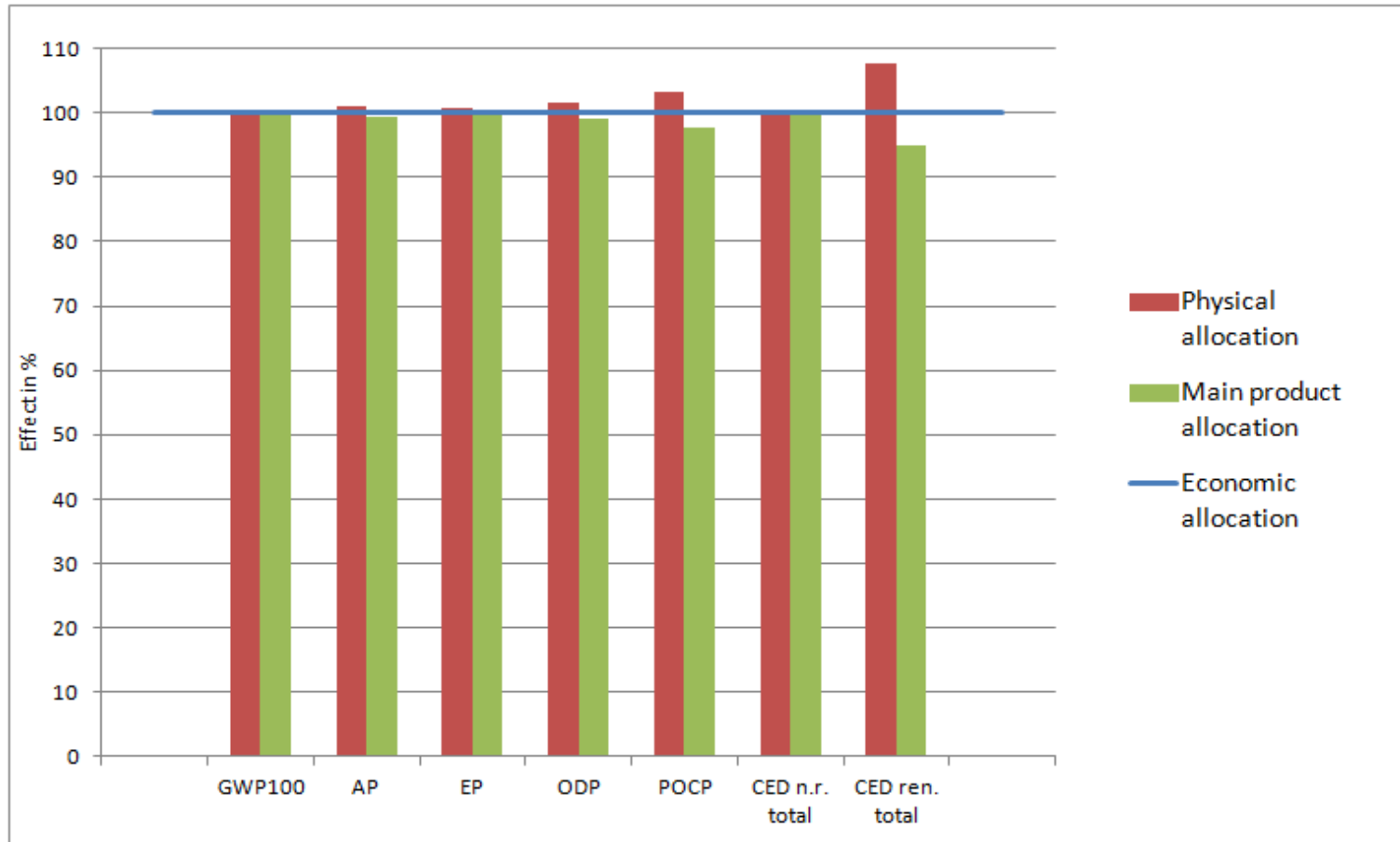


Contribution of softwood chips (residues, $u = 40\%$) on impact category indicators of a particle board

analysis: HFA

LCA of wooden products

Allocation – downstream processes



Effect of different allocation methods for softwood chips (residues, $u=40\%$) on impact categories of a particle board

Conclusions

- Little impact of allocation decisions in sawmills on LCAs of wooden products.
- Mass allocation is simple, but not always a suitable method for picturing reality.
- Allocation decisions always are subjective procedures and have to be chosen by taking the actual situation into account.
- Standards give quite restrictive guidelines for allocation decisions which seem to be a useful compromise.



Standort Stetten



Standort Arsenal

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