Supplementary Material 1

Analyzing the consequences of sharing principles on different economies: a case study of wood panel production value chain

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Table S1. Diesel Consumption for SRC agricultural processes

Process	**L/ton d.m. ***	**Machinery**	**Source *****
Heavy disking	0,094	Fastrac 8310 + horsch joker 6	PD
Ploughing	0,218	Fastrac 8310 + lemken	(Nemecek and Kagi 2007)
Harrowing	0,072	Rotary harrow	PD
Planting	0,187	Ligno Planter -R-1R (Rod planter for one row)	PD
Mechanical Weed Control (20X)	1,248	Fetor + disk 2,5m	PD
Singling (Manually)	0	Manual	PD
Felling -bunching	1,816	Shear harvester	PD
Extraction	1,711	Tractor 540m	PD
Crosscutting	1,602	Grapple Saw	PD
Chipping	0,901	Wood chooper	PD
Stump excavation	4,32	Excavating SP	(de la Fuente et al. 2016)

Rehabilitation of Field (Ploughing)	0,218	Fastrac 8310 + lemken	(Nemecek and Kagi 2007)

** d.m.= dry matter

***PD = primary data

Table S2. Oil Lubricant Consumption for SRC agricultural processes

Process	Kg/ton d.m.	Machinery	Source ***
Felling -bunching	0.0169	Shear harvester	PD
Extraction	0.0408	Tractor 540m	PD
Crosscutting	0.0149	Grapple Saw	PD
Chipping	0.0079	Wood chopper	PD

***PD = primary data

Table S3. Wood Input Material for Wood Panel production

Wood Input	Kg d.m
Pine (70%)	345.57
Poplar (30%)	148.10
Bark[1]	153.24

[1]23.68% is assumed to be bark (Kaestner, 2017)

Table S4. Chemical Input Material for Wood Panel production (source: own calculations)

Chemical input[1]	Amount (Kg/1m3 Wood Panel)
Phenol-formaldehyde	15.90
MDI resin	3.06
Wax	7.24
Total Chemical input	26.20

[1] Based on (Kaestner, 2017)

Table S5 Wood Mass Balance Output for LWB (per m3) (Source: Own calculation)

Output	Amount (Kg/1m3 Wood Panel)
Wood panel density [1]	500

LWB (wood)[2]	479.04
Wood residues	168.35
Unaccounted wood[3]	-0.47
Total wood	646.92

[1] Wood panel density was obtained through discussions with wood-panel manufacturers. The density is an average estimation of a Lightweight board (LWB).

[2] Wood mass was calculated based on the LWB weight (500 Kg/m^3) minus 80% of the total use of chemical input. It is assumed 20% of the chemical input is lost during the manufacturing (e.g., due to condensation) (Kaestner, 2017)

[3] Unaccounted wood refers to the mass difference between calculated wood input and calculated output material flow. The difference might be due to the different densities and necessary assumptions.

Table S6 Electricity consumption for m3 of LWB (Source: IKEA Industry)

Processes	Amount (Mj/ 1m3 Wood Panel)
Debarking	20.73
Flaking	37.09
Chip preparation	70.91
Drying	137.45
Energy plant	51.82
Blending	0.00
Screening	50.18
Forming Line	102.55
Exhausting	74.18
Continues Press	97.09
Cooling	0.00
Sanding+	30.00
Trimming+	0.00
Sawing	2.73
Storage	0.82
Compressed air	46.36
Other	54.55
SUM	**776,45**

* Energy content natural gas 54.45 MJ/m^3 (Puettmann et al., 2013)

S1 References

Kaestner, D., 2017. Compile a Life Cycle Assessment of the OSB and Plywood Industries in the U.S. & Analysis of the OSB and Plywood Industries in the U.S. based on a Life Cycle Assessment 1–79.

Puettmann, M., Oneil, E., Kline, E., Johnson, L., 2013. Cradle to Gate Life Cycle Assessment of Oriented Strandboard Production from the Southeast 1–23.