

Louvain School of Management

Annexes

Short Sea Shipping replacing road freight in the Baltic Region?

An analysis of the potential for a sustainable freight transport network

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Annexes

This chapter gives the principals tables, too large to be directly included in the thesis.

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Annex A: List of all the NUTS 2 regions considered in the model and their attributed centroid.

Country	Country code	NUTS 2 code	Centroid Index (i) and (j)	Centroid for each NUTS 2
Denmark	DK	DK01	1	Copenhagen
		DK02	2	Roskilde
		DK03	3	Odense
		DK04	4	Aarhus
		DK05	5	Aalborg
Germany	DE	DE80	6	Rostock
		DEF0	7	Kiel
Estonia	EE	EE00	8	Tallinn
Latvia	LV	LV00	9	Riga
Lithuania	LT	LT01	10	Vilnius
		LT02	11	Kaunas
Poland	PL	PL41	12	Poznan
		PL42	13	Szczecin
		PL43	14	Zielona Góra
		PL61	15	Bydgoszcz
		PL62	16	Olsztyn
		PL63	17	Gdańsk
Finland	FI	FI19	18	Tampere
		FI1B	19	Helsinki
		FI1C	20	turku
		FI1D	21	Kuopio
		FI20	22	Mariehamn
Sweden	SE	SE11	23	Stockholm
		SE12	24	Uppsala
		SE21	25	Jönköping
		SE22	26	Malmö
		SE23	27	Göteborg
		SE31	28	Gävle
		SE32	29	Sundsvall
		SE33	30	Umeå

The first column gives the eight countries considered in the BSR for the model, their individual code is stated in the second column. The third column presents all the NUTS 2 region taken from each country to be part of the BSR. The fourth column represents the indexes attributed to each centroid, which are subsequently given in the last column.

Annex B: List of all the ports included in the model.

Country	Country Code	Port Index (p) and (q)	Port
Denmark	DK	1	Aalborg
		2	Århus
		3	Esbjerg
		4	Fredericia
		5	Frederikshavn
		6	Gedser
		7	Helsingør
		8	Københavns Havn
		9	Rødby
Germany	DE	10	Brunsbüttel
		11	Kiel
		12	Lübeck
		13	Puttgarden
		14	Rostock
		15	Wismar
Estonia	EE	16	Pärnu
		17	Sillamäe
		18	Tallinn
Latvia	LV	19	Liepāja
		20	Rīga
		21	Ventspils
Lithuania	LT	22	Klaipėda
Poland	PL	23	Gdańsk
		24	Gdynia
		25	Swinoujście
		26	Szczecin
Finland	FI	27	HaminaKotka
		28	Hanko
		29	Helsinki
		30	Inkoo
		31	Kemi
		32	Kokkola
		33	Naantali

Country	Country Code	Port Index (p) and (q)	Port
		34	Oulu
		35	Pori
		36	Raahe
		37	Rauma
		38	Sköldvik
		39	Tornio
		40	Turku
		41	Uusikaupunki
Sweden	SE	42	Gävle
		43	Göteborg
		44	Halmstad
		45	Helsingborg
		46	Husum
		47	Kappelskär
		48	Karlshamn
		49	Karlskrona
		50	Luleå
		51	Malmö
		52	Norrköping
		53	Oxelösund
		54	Piteå
		55	Stenungsund
		56	Stockholm
		57	Sundsvall
		58	Trelleborg
		59	Umeå
		60	Varberg
		61	Västerås
		62	Ystad

The first column gives the eight countries considered in the BSR for the model, their individual code is stated in the second column. The third column gives the indexes attributed to each port representing the port of origin (p) and also the port of destination(q). The last column gives the name of the port or the name of the city in which it is located.

Annex C: Road Origin-Destination Matrix, (thousand tonnes) (part 1)

		Destination Region (j)														
		DK01	DK02	DK03	DK04	DK05	DE80	DEF0	EE00	LV00	LT01	LT02	PL41	PL42	PL43	PL61
Origin Region (i)	DK01						6.06	10.85	0.00	0.00	0.00	0.00	0.92	0.45	0.27	0.55
	DK02						2.79	5.00	0.00	0.00	0.00	0.00	0.42	0.21	0.12	0.25
	DK03						4.08	7.31	0.00	0.00	0.00	0.00	0.62	0.30	0.18	0.37
	DK04						4.38	7.83	0.00	0.00	0.00	0.00	0.66	0.32	0.19	0.39
	DK05						1.97	3.53	0.00	0.00	0.00	0.00	0.30	0.14	0.09	0.18
	DE80	21.40	9.86	14.41	15.45	6.96			0.00	0.00	0.04	0.10	2.47	1.20	0.72	1.47
	DEF0	38.30	17.64	25.79	27.64	12.45			0.00	0.00	0.07	0.18	4.42	2.15	1.29	2.64
	EE00	5.34	2.46	3.60	3.86	1.74	1.93	3.46		329.00	16.96	43.04	3.46	1.68	1.01	2.06
	LV00	3.46	1.59	2.33	2.50	1.12	8.04	14.39	1015.00		299.69	760.31	4.73	2.30	1.38	2.82
	LT01	10.31	4.75	6.94	7.44	3.35	3.81	6.81	89.91	551.60			12.23	5.95	3.55	7.29
	LT02	26.16	12.05	17.62	18.88	8.50	9.66	17.28	228.09	1399.40			31.02	15.08	9.02	18.49
	PL41	50.50	23.26	34.01	36.44	16.41	66.19	118.44	19.94	37.51	67.70	171.76				
	PL42	24.55	11.31	16.54	17.72	7.98	32.19	57.59	9.70	18.24	32.92	83.52				
	PL43	14.68	6.76	9.88	10.59	4.77	19.24	34.42	5.80	10.90	19.68	49.92				
	PL61	30.09	13.86	20.27	21.72	9.78	39.45	70.59	11.88	22.36	40.35	102.37				
	PL62	20.60	9.49	13.88	14.87	6.70	27.01	48.32	8.14	15.31	27.62	70.08				
	PL63	33.38	15.38	22.48	24.09	10.85	43.76	78.30	13.18	24.80	44.76	113.55				
	FI19	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.00	5.77	0.00	0.00	0.00	0.00	0.00	0.00
	FI1B	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.00	6.85	0.00	0.00	0.00	0.00	0.00	0.00
	FI1C	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.00	4.84	0.00	0.00	0.00	0.00	0.00	0.00
	FI1D	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.00	5.42	0.00	0.00	0.00	0.00	0.00	0.00
	FI20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00
	SE11	11.63	5.36	7.84	8.40	3.78	1.36	2.44	4.77	0.00	0.00	0.00	0.37	0.18	0.11	0.22
	SE12	8.53	3.93	5.75	6.16	2.77	1.00	1.79	3.50	0.00	0.00	0.00	0.27	0.13	0.08	0.16
	SE21	4.35	2.00	2.93	3.14	1.41	0.51	0.91	1.78	0.00	0.00	0.00	0.14	0.07	0.04	0.08
	SE22	7.60	3.50	5.12	5.49	2.47	0.89	1.60	3.12	0.00	0.00	0.00	0.24	0.12	0.07	0.14
	SE23	10.21	4.70	6.88	7.37	3.32	1.20	2.14	4.19	0.00	0.00	0.00	0.33	0.16	0.09	0.19
	SE31	4.35	2.00	2.93	3.14	1.41	0.51	0.91	1.78	0.00	0.00	0.00	0.14	0.07	0.04	0.08
	SE32	1.92	0.88	1.29	1.38	0.62	0.23	0.40	0.79	0.00	0.00	0.00	0.06	0.03	0.02	0.04
	SE33	2.65	1.22	1.78	1.91	0.86	0.31	0.56	1.09	0.00	0.00	0.00	0.08	0.04	0.02	0.05

Annex D: Maritime Origin-Destination Matrix (thousand tonnes) (part 1)

		Destination Region (j)															
		DK01	DK02	DK03	DK04	DK05	DE80	DEF0	EE00	LV00	LT01	LT02	PL41	PL42	PL43	PL61	
Origin Region (i)	DK01	0.00	0.00	0.00	0.00	0.00	6.31	11.36	6.51	7.91		11.63				12.39	
	DK02	0.00	0.00	0.00	0.00	0.00	12.60	22.68	13.00	15.79		23.22				24.75	
	DK03	0.00	0.00	0.00	0.00	0.00	10.89	19.59	11.23	13.64		20.05				21.38	
	DK04	0.00	0.00	0.00	0.00	0.00	4.91	8.83	5.06	6.15		9.04				9.63	
	DK05	0.00	0.00	0.00	0.00	0.00	4.90	8.83	5.06	6.14		9.03				9.63	
	DE80	35.82	16.33	23.87	25.77	11.51	0.00	0.00	10.86	10.09		20.95				60.85	
	DEF0	41.06	18.72	27.36	29.54	13.19	0.00	0.00	12.45	11.56		24.02				69.75	
	EE00	81.62	37.20	54.39	58.72	26.22	8.55	15.38	0.00	628.79		472.54				30.21	
	LV00	112.09	51.09	74.70	80.65	36.01	11.27	20.28	798.96	0.00		1310.99				46.75	
	LT01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00				0.00	
	LT02	56.71	25.85	37.79	40.80	18.22	10.45	18.80	336.04	659.62		0.00				0.90	
	PL41																
	PL42	17.91	8.16	11.94	12.89	5.75	18.10	32.58	16.09	21.68		53.85				0.00	
	PL43																
	PL61																
	PL62																
	PL63	44.41	20.24	29.60	31.95	14.27	44.89	80.78	39.89	53.76		133.54				0.00	
	FI19	15.01	6.84	10.01	10.80	4.82	8.32	14.96	73.52	28.49		30.64				12.56	
	FI1B	45.96	20.95	30.63	33.07	14.77	25.46	45.82	225.10	87.23		93.79				38.44	
	FI1C	40.02	18.24	26.67	28.79	12.86	22.17	39.89	196.00	75.95		81.67				33.47	
	FI1D	18.60	8.48	12.39	13.38	5.97	10.30	18.54	91.08	35.29		37.95				15.56	
	FI20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00				0.00	
	SE11	29.10	13.26	19.39	20.94	9.35	2.65	4.76	10.77	4.73		10.24				6.81	
	SE12	38.41	17.51	25.60	27.64	12.34	3.50	6.29	14.21	6.24		13.52				8.99	
	SE21	20.97	9.56	13.97	15.09	6.74	1.91	3.43	7.76	3.41		7.38				4.91	
	SE22	200.75	91.51	133.79	144.44	64.50	18.27	32.87	74.28	32.61		70.65				46.96	
	SE23	244.92	111.64	163.23	176.22	78.69	22.28	40.10	90.62	39.78		86.20				57.29	
	SE31	32.38	14.76	21.58	23.30	10.40	2.95	5.30	11.98	5.26		11.40				7.58	
SE32	26.86	12.24	17.90	19.32	8.63	2.44	4.40	9.94	4.36		9.45				6.28		
SE33	81.73	37.25	54.47	58.80	26.26	7.44	13.38	30.24	13.28		28.76				19.12		

Annex E: Final Origin-Destination Matrix (thousand tonnes) (part 1)

		Destination Region (j)															
		DK01	DK02	DK03	DK04	DK05	DE80	DEF0	EE00	LV00	LT01	LT02	PL41	PL42	PL43	PL61	
Origin Region (i)	DK01						12.37	22.21	6.51	7.91		11.63	0.92	12.84	0.27	0.55	
	DK02						15.40	27.68	13.00	15.79		23.22	0.42	24.96	0.12	0.25	
	DK03						14.97	26.90	11.23	13.64		20.05	0.62	21.68	0.18	0.37	
	DK04						9.28	16.66	5.06	6.15		9.04	0.66	9.96	0.19	0.39	
	DK05						6.87	12.35	5.06	6.14		9.03	0.30	9.77	0.09	0.18	
	DE80	57.22	26.19	38.29	41.22	18.46			10.86	10.09	0.04	21.05	2.47	62.05	0.72	1.47	
	DEF0	79.36	36.36	53.16	57.18	25.64			12.45	11.56	0.07	24.19	4.42	71.90	1.29	2.64	
	EE00	86.96	39.67	57.99	62.58	27.96	10.48	18.84		957.79	16.96	515.58	3.46	31.89	1.01	2.06	
	LV00	115.55	52.69	77.03	83.14	37.14	19.31	34.67	1813.96		299.69	2071.30	4.73	49.06	1.38	2.82	
	LT01	10.31	4.75	6.94	7.44	3.35	3.81	6.81	89.91	551.60				12.23	5.95	3.55	7.29
	LT02	82.86	37.90	55.41	59.68	26.72	20.11	36.09	564.13	2059.03				31.02	15.99	9.02	18.49
	PL41	50.50	23.26	34.01	36.44	16.41	66.19	118.44	19.94	37.51	67.70	171.76					
	PL42	42.46	19.48	28.47	30.61	13.73	50.29	90.17	25.78	39.92	32.92	137.38					
	PL43	14.68	6.76	9.88	10.59	4.77	19.24	34.42	5.80	10.90	19.68	49.92					
	PL61	30.09	13.86	20.27	21.72	9.78	39.45	70.59	11.88	22.36	40.35	102.37					
	PL62	20.60	9.49	13.88	14.87	6.70	27.01	48.32	8.14	15.31	27.62	70.08					
	PL63	77.80	35.62	52.08	56.04	25.12	88.65	159.09	53.07	78.56	44.76	247.09					
	FI19	15.01	6.84	10.01	10.80	4.82	8.35	15.02	73.52	34.26		30.64		12.56			
	FI1B	45.96	20.95	30.63	33.07	14.77	25.49	45.88	225.10	94.07		93.79		38.44			
	FI1C	40.02	18.24	26.67	28.79	12.86	22.19	39.94	196.00	80.80		81.67		33.47			
	FI1D	18.60	8.48	12.39	13.38	5.97	10.33	18.59	91.08	40.71		37.95		15.56			
	FI20						0.00	0.00		0.12							
	SE11	40.73	18.62	27.23	29.33	13.13	4.01	7.21	15.53	4.73		10.24	0.37	6.99	0.11	0.22	
	SE12	46.94	21.44	31.35	33.79	15.11	4.50	8.08	17.71	6.24		13.52	0.27	9.12	0.08	0.16	
	SE21	25.31	11.56	16.90	18.22	8.15	2.42	4.35	9.54	3.41		7.38	0.14	4.97	0.04	0.08	
	SE22	208.35	95.01	138.91	149.92	66.97	19.16	34.47	77.39	32.61		70.65	0.24	47.08	0.07	0.14	
	SE23	255.13	116.35	170.11	183.59	82.01	23.48	42.25	94.81	39.78		86.20	0.33	57.45	0.09	0.19	
	SE31	36.73	16.77	24.51	26.44	11.82	3.46	6.22	13.77	5.26		11.40	0.14	7.64	0.04	0.08	
	SE32	28.77	13.13	19.19	20.71	9.25	2.67	4.80	10.72	4.36		9.45	0.06	6.31	0.02	0.04	
	SE33	84.37	38.47	56.25	60.71	27.12	7.75	13.94	31.32	13.28		28.76	0.08	19.16	0.02	0.05	

