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Market Power, Scale Economies and Productivity: Estimates from a Panel of Establishment Data

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Table 1: Summary statistics for the year 1985

Industry (ISIC - code)	Sales ¹⁾		Workers		Value added per worker ²⁾		Capital per worker ²⁾		Lerner index ³⁾ (residual share)		Plants	Firms
	Mean	Std.dev.	Mean	Std.dev.	Mean	Std.dev.	Mean	Std.dev.	Mean	Std.dev.		
Textiles (321)	14.1	19.3	37.5	47.0	1.43	0.59	0.56	0.42	0.11	0.10	208	186
Clothing (322-4)	8.8	13.4	29.8	33.9	1.30	1.10	0.26	0.24	0.10	0.12	183	175
Wood products (331)	13.7	27.8	23.7	44.1	1.73	0.74	0.47	0.44	0.12	0.10	738	686
Furniture (332)	16.3	35.5	32.5	53.7	1.69	0.58	0.42	0.21	0.12	0.08	241	233
Paper (341)	120.9	196.5	120.9	156.5	2.39	1.73	1.65	1.37	0.09	0.09	108	76
Printing (342)	17.5	56.0	37.8	14.5	2.45	1.35	0.55	0.45	0.15	0.15	772	752
Chemicals (351-2)	116.9	291.1	96.8	200.3	3.79	3.28	1.45	1.85	0.15	0.15	140	105
Plastics (355-6)	18.2	31.4	33.5	57.2	2.03	0.89	0.71	0.43	0.14	0.10	227	210
Mineral product (36)	17.7	34.1	27.7	53.2	2.60	1.64	0.95	1.14	0.17	0.14	352	304
Metals (37)	273.1	486.7	244.0	343.2	2.50	1.10	1.30	0.82	0.11	0.09	89	70
Metal product (381)	13.7	25.8	31.2	50.5	1.86	0.74	0.50	0.42	0.12	0.11	704	669
Machinery (382)	44.9	148.0	70.5	176.8	2.13	1.03	0.44	0.33	0.10	0.13	501	421
Electrical equipment (383)	43.8	128.3	79.0	190.9	2.07	0.94	0.45	0.38	0.10	0.13	214	195
Transport equipment (384)	30.7	61.2	62.8	123.0	1.86	0.89	0.41	0.34	0.08	0.13	455	429

Footnotes: 1) Mill. Nkr

2) 10⁵ Nkr3) $1 - C^V / (PQ)$; C^V - variable costs, PQ - value of production.

Table 2. Results from specification test for the choice of instrument. Hansen's (1982) overidentification test with a Chi-square distribution

Model	D.o.f. ¹⁾	Textiles (321)	Clothing (322-4)	Wood products (331)	Furniture (332)	Paper (341)	Printing (342)	Chemicals (351-2)	Plastics (355-6)	Mineral products (36)	Metals (37)	Metal products (381)	Machinery (382)	Electrical equipment (383)	Transport equipment (384)
I	196	199.2	201.4	232.5	200.7	122.2	252.5**	154.9	212.0	217.2	97.8	241.9	244.3*	191.8	179.4
II	160	163.6	171.5	180.3	158.0	121.8	208.3**	156.4	181.6	169.2	95.4	170.1	197.9*	161.4	158.2
III	124	121.5	136.2	156.0*	133.0	122.2	187.4**	132.6	133.0	154.3*	97.9	153.6*	146.0	128.0	126.4
IV	106	103.3	116.7	132.3*	109.4	112.8	156.7**	124.4	115.3	124.8	98.5	134.7*	116.3	109.8	111.4
V	88	87.3	93.2	107.0	101.5	101.9	119.1*	103.9	86.8	101.8	90.9	105.9	94.9	94.7	96.3
I vs. II	36	35.6	29.9	52.2*	42.6	0.4	44.2	0.0 ²⁾	30.5	47.9	2.5	71.8**	46.5	30.4	21.2
II vs. V	72	76.2	78.3	73.3	56.6	19.9	89.2	52.5	94.8*	67.4	4.5	64.2	103.5*	63.9	61.9
I vs. III	72	77.7	65.2	76.6	67.7	0.0	65.1	22.3	79.0	62.8	0.0 ²⁾	88.2	98.3*	18.1	53.0
III vs. IV	18	18.2	19.5	23.6	23.4	9.4	30.7*	8.2	17.7	29.5*	0.0 ²⁾	18.9	29.8*	18.2	15.0
IV vs. V	18	15.9	23.5	25.3	7.9	10.9	37.5**	20.6	28.5	23.0	7.6	28.8	21.9	15.1	15.1
#Obs		1733	1363	5594	1996	926	5966	1094	1758	2571	730	5508	3596	1690	3600
#Plants		258	230	867	285	123	888	157	267	400	100	888	603	264	581

Footnotes:

- 1) Degrees of freedom.
- 2) The difference-test statistic was negative.
- * Test rejects at 5 % level.
- ** Test rejects at 1 % level.

Table 3. Estimated price-cost margins and scale economies from the preferred specifications. 1 step GMM estimates with robust standard errors

Model	Textiles (321)	Clothing (322-4)	Wood products (331)	Furnitur e (332)	Paper (341)	Printing (342)	Chemicals (351-2)	Plastics (355-6)	Mineral products (36)	Metals (37)	Metal products (381)	Machinery (382)	Electrical equipment (383)	Transport equipment (384)
Markup	1.047 (.019)	1.064 (.027)	1.078 (.020)	1.051 (.019)	1.087 (.027)	0.649 (.094)	0.972 (.050)	1.051 (.027)	1.043 (.037)	1.088 (.033)	1.075 (.023)	0.999 (.037)	1.054 (.030)	1.029 (.012)
Scale	0.978 (.022)	1.002 (.027)	0.954 (.019)	0.977 (.016)	1.009 (.025)	0.653 (.080)	0.885 (.055)	0.909 (.023)	0.917 (.028)	1.006 (.039)	0.984 (.021)	0.901 (.039)	0.960 (.025)	0.981 (.013)
Overidentification-test ¹⁾	192.2 (196)	201.4 (196)	180.3 (160)	2007 (196)	122.2 (196)	119.1 ²⁾ (88)	154.9 (196)	133.0 (124)	169.2 (160)	97.8 (196)	170.1 (160)	116.3 (106)	191.8 (196)	179.4 (196)
Test for 1. order autocorr.	-6.80 ⁴⁾	-5.11 ⁴⁾	-4.08 ⁴⁾	-6.50 ⁴⁾	-3.92 ⁴⁾	-6.33 ⁴⁾	-4.62 ⁴⁾	-5.91 ⁴⁾	-8.76 ⁴⁾	-3.81 ⁴⁾	-10.39 ⁴⁾	-7.23 ⁴⁾	-5.42 ⁴⁾	-5.22 ⁴⁾
Test for 2. order autocorr.	-0.92	-2.43	-2.73 ⁴⁾	-0.27	-3.14 ⁴⁾	-0.91	-2.51	-2.47	-2.53	-3.29 ⁴⁾	-2.56	-3.05 ⁴⁾	-2.03	0.06
Instrument set ³⁾	I	I	II	I	I	V	I	III	II	I	II	IV	I	I
#Obs.	1733	1363	5594	1996	926	5966	1094	1758	2571	730	5508	3596	1690	3600
#Plants	258	230	867	284	123	888	157	267	400	100	888	603	264	581

Footnotes: 1) Hansen's (1982) overidentification-test with a Chi-square distribution. Degrees of freedom in parentheses.

2) Overidentification-test rejects at 5% level.

3) Preferred instrument set (see table 2):

I: All leads and lags.

II: Non-contemporaneous IVs.

III: Predetermined IVs dated t and earlier.

IV: Predetermined IVs dated t-1 and earlier.

V: Predetermined IVs dated t-2 and earlier.

4) Significantly different from zero at 1% level.

Table 4. Parameter variances and covariances. Estimates from regressions on cross-products of residuals¹⁾

Model	Textiles (321)	Clothing (322-4)	Wood products (331)	Furniture (332)	Paper (341)	Printing (342)	Chemicals (351-2)	Plastics (355-6)	Mineral products (36)	Metals (37)	Metal products (381)	Machinery (382)	Electrical equipment (383)	Transport equipment (384)
S_a^2	0.018* (.002)	0.018* (.002)	0.009* (.001)	0.007* (.001)	0.043* (.010)	0.011* (.005)	0.022* (.010)	0.001 (.005)	0.012* (.002)	0.021* (.003)	0.013* (.001)	0.017* (.002)	0.014* (.003)	0.012* (.001)
S_m^2	0.001 (.003)	0.003 (.002)	0.005* (.002)	0.012* (.003)	0.0 ²⁾ (-)	0.222* (.019)	0.035* (.015)	0.044* (.012)	0.005 (.005)	0.003 (.004)	0.001 (.001)	0.005 (.004)	0.001 (.005)	0.002 (.001)
S_h^2	0.001 (.001)	0.004* (.002)	0.002* (.000)	0.001 (.001)	0.0 ³⁾ (-)	0.131* (.005)	0.024* (.005)	0.029* (.003)	0.004 (.002)	0.0 ²⁾ (-)	0.000 (.000)	0.005* (.001)	0.003* (.001)	0.001* (.001)
S_{am}	-0.004 (.002)	-0.004* (.002)	-0.001 (.001)	-0.003* (.001)	-0.007 (.005)	-0.020* (.005)	-0.017* (.009)	-0.016* (.002)	-0.001 (.002)	-0.006* (.003)	-0.001 (.001)	-0.001 (.003)	-0.002 (.002)	-0.003* (.001)
S_{ah}	-0.004* (.002)	-0.005* (.002)	-0.003* (.000)	-0.003* (.001)	0.002 (.003)	-0.025* (.003)	-0.014* (.006)	-0.017* (.002)	-0.006* (.002)	-0.001 (.001)	-0.002* (.001)	-0.009* (.001)	-0.001 (.001)	-0.003* (.000)
S_{mh}	0.001 (.002)	0.003 (.002)	0.002* (.001)	0.000 (.002)	-0.005* (.002)	0.168* (.011)	0.035* (.008)	0.023* (.006)	0.002 (.002)	0.000 (.001)	0.001 (.001)	0.001 (.002)	0.004 (.002)	0.000 (.001)

Footnotes: 1) Heteroscedasticity-robust standard errors in parentheses.
2) Negative variance estimate, not significantly different from zero.
3) Negative variance estimate, significantly below zero.
* Significantly different from zero at the 5% level.

Figur 1. Specification testing for the choice of instruments. The boxes show the dating of the instrument sets for the specification. The non-rejected specification furthest down in the figure is the preferred specification

