

**Exports and Firm Characteristics –
First Evidence from Fractional Probit Panel Estimates**

by
Joachim Wagner

University of Lüneburg
Working Paper Series in Economics

No. 97

August 2008

www.leuphana.de/vwl/papers

ISSN 1860 - 5508

Exports and Firm Characteristics – First Evidence from Fractional Probit Panel Estimates

Joachim Wagner[#]

[This version: August 28, 2008]

Abstract:

Using recently released nationally representative data and a new estimator for fractional probit panel models, this paper reconsiders the relationship between the fraction of exports in total sales and firm characteristics in West and East German manufacturing. Controlling for unobserved firm characteristics no impact of human capital and R&D intensity on export performance is found, while firm size is positively related to exporting in West Germany only.

Keywords: Exports, firm characteristics, fractional probit panel model, Germany

JEL classification: F14

[#] Corresponding author:

Joachim Wagner, Leuphana University Lüneburg
PO Box 2440, D-21314 Lüneburg, Germany
Phone: +49-4131-677-2330, Fax: +49-4131-677-2026,
e-mail: wagner@uni-lueneburg.de

Acknowledgement: I thank Jeff Wooldridge and Leslie Papke for sharing their Stata code to estimate fractional probit panel models, and Nils Braakmann and Alex Vogel for extremely helpful discussions. Computations were done inside the Research Data Centre of the Statistical Office of Berlin.

1. Motivation

Germany is one of the leading actors on the world market for manufactured goods, and exports play a key role in shaping the development of the economy. It is important, therefore, to understand what makes a successful exporter. One interesting question in this context is whether there are easily observable characteristics of a firm that are closely related to success on international markets. If this is the case, policy measures might be designed that either target firms with these characteristics to foster export activities, or that help firms that do not yet have these characteristics to build them up and to become the successful exporters of the future. If there are no such characteristics, this casts doubts on the adequacy of specially targeted export promotion programs with a focus on selected groups of firms.

The proof that certain observable characteristics of a firm are closely related to its export activity is all but easily delivered. Obviously, one can compare exporters and importers (or firms that export a small share of their total product with firms that export a large share) with respect to firm size, human capital intensity, or R&D activities. Such comparisons, however, can neither take care of any relationship between these characteristics, nor can they deal with the role of unobserved (and sometimes unobservable) characteristics – like a unique product, or superior quality of the management of a firm - that might be correlated with the observed characteristics. The workhorse in empirical studies faced with these problems is an empirical model estimated with panel data that includes fixed effects to control for time invariant unobserved firm characteristics that might be correlated with the variables in that empirical model.

However, any attempt to apply this strategy is confronted with a problem that is due to the nature of the variable to be explained: The share of exports in total sales is a percentage variable that is by definition limited between zero and 100 percent

with a lot of observations at the lower bound because many firms do not export at all. Papke and Wooldridge (1996) showed that for a fractional response variable of this type, and using cross section data, a fractional logit estimator is appropriate. Wagner (2001) introduced this estimation strategy into the literature on the determinants of exporting activities of firms, and discussed the flaws related to alternative approaches like Tobit or two-step estimators .

If the number of panels (i.e., firms) in a population (an industry, or a country) is finite and each panel is represented in the data set, an unconditional fixed-effects fractional logit model can be used which simply includes an indicator variable for each firm (see Hardin and Hilbe 2001: 195). Wagner (2003) applied this modelling strategy using information on all firms in three manufacturing industries from one German federal state. He finds that the positive relationship between firm size and exports, and between the average wage per employee (a proxy for human capital) and exports, that is usually found in cross-section data vanishes when unobserved firm characteristics are controlled for.

This unconditional fixed-effects approach can only be used when information for the population of firms is available for a number of periods, and that is rarely the case. In a recent paper Papke and Wooldridge (2007) introduce a method that can be applied to estimate fractional response models for panel data with a large cross-sectional dimension and relatively few time periods while explicitly allowing for time-constant unobserved effects that can be correlated with explanatory variables. The data need not cover the whole population, but they must form a balanced panel data set with complete information on all variables in each year for each firm.

In this paper we apply the newly developed panel data method for fractional response variables to reconsider the relationship between the share of exports in total sales and firm size, human capital intensity, and R&D intensity in manufacturing

enterprises in West and East Germany, using unique recently released nationally representative high-quality data. Section 2 introduces the data and the empirical modelling strategy. Section 3 presents the results of the econometric investigation and concludes.

2. Data and Empirical Modelling Strategy

The data used in this study are merged from two surveys conducted by the German Statistical Offices. One source is the monthly report for establishments in manufacturing industries described in Konold (2007). For this project the information collected at the establishment level has been aggregated at the enterprise level to match the unit of observation from the second source of data used here, the cost structure survey for enterprises in the manufacturing sector. This survey is carried out annually as a representative random sample survey (stratified according to the number of employees and the industries) of around 18.000 enterprises (see Fritsch et al. 2004). Data from the two sources are matched using the enterprise identifier available in both surveys. The resulting panel covers the years 1999 to 2002. These data are confidential but not exclusive (see Zühlke et al. 2004 for details).

The balanced panels used cover 11,117 enterprises in West Germany and 1,995 enterprises in East Germany. While there are differences between West and East Germany with regard to the share of exporting enterprises (three in four in West Germany compared to one in two in East Germany), exporters are significantly larger, more human capital intensive (measured by the average wage per employee) and more R&D intensive (measured by either the share of employees in R&D, or by the ratio of R&D expenditures to total sales) than non-exporters in both parts of Germany.¹

¹ A table with descriptive statistics is available on request.

These facts are in line with evidence from former empirical studies. Furthermore, given that Germany is one of the most highly developed countries we expect that firms using human capital and new technology intensively to produce new products have a comparative advantage and, therefore, are the more successful exporters. To investigate the links between the share of exports in total sales and firm size, human capital and R&D empirically, we use for the first time the pooled fractional probit estimator introduced by Papke and Wooldridge (2007). Papke and Wooldridge prove that time-constant unobserved effects that can be correlated with explanatory variables are controlled for by adding the time averages of the explanatory variables to an empirical model. The model is estimated with a generalized linear models command using Stata.

3. Results of the Econometric Investigation

Estimation results for West and East Germany are reported in Table 1. To demonstrate the importance of controlling for unobserved time-invariant firm characteristics all models are estimated with and without fixed effects; furthermore, two variables measuring R&D intensity either by the share of employees in R&D or by expenditures for R&D over total sales are used alternatively.

[Table 1 near here]

In the models without fixed effects the estimated coefficients of all the exogenous variables are statistically significant at a usual level and have the expected signs – the share of exports in total sales is higher in larger, more human capital intensive and more R&D intensive enterprises (after controlling for detailed industry affiliation and year). This picture is completely different when we look at the

results from empirical models that control for time-invariant unobserved firm effects by using the new pooled fractional probit estimator introduced by Papke and Wooldridge (2007). None of the reported coefficients is statistically different from zero in the fixed effects models for East Germany. For West Germany, the statistically significant relations between exports and human capital or R&D intensity found in the models without fixed effects vanish when time-invariant unobserved firm characteristics are controlled for, while size and share of exports in total sales are positively related in that model, too.²

According to these results controlling for unobserved time-invariant enterprise characteristics is crucial for any empirical study that relates firm characteristics and export activities. The evidence presented demonstrates that in German manufacturing industries it is neither human capital intensity, nor R&D intensity *per se* that make a successful exporter, but that unobserved time-invariant characteristics that are correlated with these observed characteristics matter. Reading beyond professional journals and looking at evidence reported in the business press or trade journals reveals that such characteristics - like a unique product, or superior quality of the management of a firm – are often found in very small firms with no or negligible R&D activities. All this cast doubts that any specially targeted export promotion programs with a focus on selected groups of human capital intensive and R&D intensive firms are adequate.

² Note that only a few enterprises in the samples are larger than the maximum of the quadratic equation in firm size in all models. Therefore, the results indicate that the share of exports in total sales increases with size.

References

- Fritsch, M., Görzig, B., Hennchen, O., Stephan, A., 2004. Cost Structure Surveys for Germany. *Journal of Applied Social Science Studies* 124, 557-566.
- Hardin, J., Hilbe, J., 2001. *Generalized Linear Models and Extensions*. College Station, TX: Stata Press.
- Konold, M., 2007. New Possibilities for Economic Research through Integration of Establishment-level Panel Data of German Official Statistics. *Journal of Applied Social Science Studies* 127, 321-334.
- Papke, L., Wooldridge, J. M., 1996. Econometric Methods for Fractional Response Variables with an Application to 401(k) Plan Participation Rates. *Journal of Applied Econometrics* 11, 619-632.
- Papke, L., Wooldridge, J. M., 2007. Panel Data Methods for Fractional Response Variables with an Application to Test Pass Rates. Department of Economics, Michigan State University, mimeo (version: April 2007). Forthcoming, *Journal of Econometrics*.
- Wagner, J., 2001. A Note on the Firm Size – Export Relationship. *Small Business Economics* 17, 229-237.
- Wagner, J., 2003. Unobserved Firm Heterogeneity and the Size-Exports Nexus: Evidence from German Panel Data. *Review of World Economics* 139, 161-172.
- Zühlke, S., Zwick, M., Scharnhorst, S., Wende, T., 2004. The research data centres of the Federal Statistical Office and the statistical offices of the *Länder*. *Journal of Applied Social Science Studies* 124, 567-578.

Table 1: Results of the econometric study

Endogenous variable: Share of exports in total sales

Exogenous variable	West Germany				East Germany				
		Pooled data		Fixed effects		Pooled Data		Fixed Effects	
Average number of employees	β	0.000043	0.000049	0.0000341	0.0000346	0.00038	0.00040	0.00011	0.00012
	p	0.000	0.000	0.009	0.008	0.000	0.000	0.368	0.364
Average number of employees (squared)	β	-2.80e-10	-3.13e-10	-1.58e-10	-1.59e-10	-2.98e-8	-3.50e-8	-1.31e-8	-1.37e-8
	p	0.000	0.000	0.004	0.003	0.052	0.020	0.134	0.132
Average wage per employee (in €)	β	0.000019	0.000019	-5.13e-7	-5.24e-7	0.000028	0.000027	-1.31e-7	-1.17e-7
	p	0.000	0.000	0.332	0.314	0.000	0.000	0.953	0.958
Share of employees in R&D (%)	β	4.453		-0.156		1.690		-0.014	
	p	0.000		0.270		0.010		0.940	
Expenditures for R&D over total sales (%)	β		1.875		0.015		1.734		-0.00014
	p		0.000		0.859		0.000		0.999
Number of enterprises		11,117	11,117	11,117	11,117	1,995	1,995	1,995	1,995
Number of observations		44,468	44,468	44,468	44,468	7,980	7,980	7,980	7,980

Note: All models include a constant, dummy variables for the years 1999, 2000 and 2002, and dummy variables for 4-digit industries. The fixed effects models include the time averages of all exogenous variables, too. For details regarding the estimation strategies see text.

Appendix: Descriptive statistics for exporting and non-exporting enterprises

	West Germany	East Germany
Share of exporting enterprises (percent) in year 1999	75.36	53.93
In year 2002	76.15	56.64
Share of enterprises (percent) that ...		
exported in each year between 1999 and 2002	72.78	49.62
never exported in a year between 1999 and 2002	20.91	38.35
Average share of exports in total sales 2002 (percent)		
- all enterprises	23.50	13.24
- exporting enterprises only	30.87	23.37
Average number of employees in year 2002		
- in exporting enterprises	403.82	184.23
- in non-exporting enterprises	122.46	126.28
Average wage per employee in year 2002 (€)		
- in exporting enterprises	33,627	24,660
- in non-exporting enterprises	28,569	21,677
Average share of employees in R&D (percent) in year 2002		
- in exporting enterprises	1.04	1.30
- in non-exporting enterprises	0.13	0.40
Expenditures for R&D / total sales (percent) in year 2002		
- in exporting enterprises	2.20	2.99
- in non-exporting enterprises	0.27	0.89
Number of enterprises in the balanced panel	11,117	1,995

Note: The difference between exporting and non-exporting enterprises is always statistically significant at an error level of one percent according to a two-sample t-test .with unequal variances.

Working Paper Series in Economics

(see www.leuphana.de/vwl/papers for a complete list)

- No.96: *Nils Braakmann*: The smoking wage penalty in the United Kingdom: Regression and matching evidence from the British Household Panel Survey, August 2008
- No.95: *Joachim Wagner*: Exportaktivitäten und Rendite in niedersächsischen Industrieunternehmen, August 2008
- No.94: *Joachim Wagner*: Wirken sich Exportaktivitäten positiv auf die Rendite von deutschen Industrieunternehmen aus?, August 2008
- No.93: *Claus Schnabel & Joachim Wagner*: The aging of the unions in West Germany, 1980-2006, August 2008
- No.92: *Alexander Vogel and Stefan Dittrich*: The German turnover tax statistics panels, August 2008
[forthcoming in: Schmollers Jahrbuch 128 (2008)]
- No.91: *Nils Braakmann*: Crime does pay (at least when it's violent!) – On the compensating wage differentials of high regional crime levels, July 2008
- No.90: *Nils Braakmann*: Fields of training, plant characteristics and the gender wage gap in entry wages among skilled workers – Evidence from German administrative data, July 2008
- No.89: *Alexander Vogel*: Exports productivity in the German business services sector: First evidence from the Turnover Tax Statistics panel, July 2008
- No.88: *Joachim Wagner*: Improvements and future challenges for the research infrastructure in the field *Firm Level Data*, June 2008
- No.87: *Markus Groth*: A review of the German mandatory deposit for one-way drinks packaging and drinks packaging taxes in Europe, June 2008
- No.86: *Heike Wetzel*: European railway deregulation. The influence of regulatory and environmental conditions on efficiency, May 2008
- No.85: *Nils Braakmann*: Non scholae, sed vitae discimus! - The importance of fields of study for the gender wage gap among German university graduates during market entry and the first years of their careers, May 2008
- No.84: *Markus Groth*: Private ex-ante transaction costs for repeated biodiversity conservation auctions: A case study, May 2008
- No.83: *Jan Kranich*: R&D and the agglomeration of industries, April 2008
- No.82: *Alexander Vogel*: Zur Exporttätigkeit unternehmensnaher Dienstleister in Niedersachsen - Erste Ergebnisse zu Export und Produktivität auf Basis des Umsatzsteuerstatistikpanels, April 2008
- No.81: *Joachim Wagner*: Exporte und Firmenerfolg: Welche Firmen profitieren wie vom internationalen Handel?, März 2008
- No.80: *Stefan Baumgärtner*: Managing increasing environmental risks through agro-biodiversity and agri-environmental policies, March 2008
- No.79: *Thomas Huth*: Die Quantitätstheorie des Geldes – Eine keynesianische Reformulierung, März 2008
- No.78: *Markus Groth*: An empirical examination of repeated auctions for biodiversity conservation contracts, March 2008

- No.77: *Nils Braakmann*: Intra-firm wage inequality and firm performance – First evidence from German linked employer-employee-data, February 2008
- No.76: *Markus Groth*: Perspektiven der Nutzung von Methanhydraten als Energieträger – Eine Bestandsaufnahme, Februar 2008
- No.75: *Stefan Baumgärtner, Christian Becker, Karin Frank, Birgit Müller & Christian Quaas*: Relating the philosophy and practice of ecological economics. The role of concepts, models, and case studies in inter- and transdisciplinary sustainability research, January 2008
[forthcoming in: Ecological Economics]
- No.74: *Thorsten Schank, Claus Schnabel & Joachim Wagner*: Higher wages in exporting firms: Self-selection, export effect, or both? First evidence from German linked employer-employee data, January 2008
- No.73: *Institut für Volkswirtschaftslehre*: Forschungsbericht 2007, Januar 2008
- No.72: *Christian Growitsch and Heike Wetzel*: Testing for economies of scope in European railways: An efficiency analysis, December 2007
[revised version of Working Paper No. 29,
forthcoming in: Journal of Transport Economics and Policy]
- No.71: *Joachim Wagner, Lena Koller and Claus Schnabel*: Sind mittelständische Betriebe der Jobmotor der deutschen Wirtschaft?, Dezember 2007
[publiziert in: Wirtschaftsdienst 88 (2008), 2, 130-135]
- No.70: *Nils Braakmann*: Islamistic terror, the war on Iraq and the job prospects of Arab men in Britain: Does a country's direct involvement matter?, December 2007
- No.69: *Maik Heinemann*: E-stability and stability learning in models with asymmetric information, December 2007
- No.68: *Joachim Wagner*: Exporte und Produktivität in Industriebetrieben – Niedersachsen im interregionalen und internationalen Vergleich, Dezember 2007
- No.67: *Stefan Baumgärtner and Martin F. Quaas*: Ecological-economic viability as a criterion of strong sustainability under uncertainty, November 2007
- No.66: *Kathrin Michael*: Überbrückungsgeld und Existenzgründungszuschuss – Ergebnisse einer schriftlichen Befragung drei Jahre nach Gründungsbeginn, November 2007
- No.65: *The International Study Group on Export and Productivity*: Exports and Productivity – Comparable Evidence for 14 Countries, November 2007
- No.64: *Lena Koller, Claus Schnabel und Joachim Wagner*: Freistellung von Betriebsräten – Eine Beschäftigungsbremse?, November 2007
[erscheint in: Zeitschrift für Arbeitsmarktforschung, Heft 2/3 2008]
- No.63: *Anne-Kathrin Last*: The Monetary Value of Cultural Goods: A Contingent Valuation Study of the Municipal Supply of Cultural Goods in Lueneburg, Germany, October 2007
- No.62: *Thomas Wein und Heike Wetzel*: The Difficulty to Behave as a (regulated) Natural Monopolist – The Dynamics of Electricity Network Access Charges in Germany 2002 to 2005, September 2007
- No.61: *Stefan Baumgärtner und Martin F. Quaas*: Agro-biodiversity as natural insurance and the development of financial insurance markets, September 2007
[published in: A. Kontoleon, U. Pascual and M. Smale (eds.): Agrobiodiversity, conservation and economic development, Routledge, London, 293-317]

- No.60: *Stefan Bender, Joachim Wagner, Markus Zwick*: KombiFiD - Kombinierte Firmendaten für Deutschland, September 2007
- No.59: *Jan Kranich*: Too much R&D? - Vertical differentiation in a model of monopolistic competition, August 2007
- No.58: *Christian Papilloud und Ingrid Ott*: Convergence or mediation? Experts of vulnerability and the vulnerability of experts' discourses on nanotechnologies – a case study, July 2007
[published in: European Journal of Social Science Research 21 (2008), 1, 41-64]
- No.57: *Ingrid Ott und Susanne Soretz*: Governmental activity, integration and agglomeration, July 2007
[published in: ICFAI Journal of Managerial Economics 5 (2008), 2, 28-47]
- No.56: *Nils Braakmann*: Struktur und Erfolg von Ich-AG-Gründungen: Ergebnisse einer Umfrage im Arbeitsagenturbezirk Lüneburg, Juli 2007
[revidierte Fassung erscheint in: Richter, J., Schöning, S. & Wetzel, H., Mittelstand 2008. Aktuelle Forschungsbeiträge zu gesellschaftlichen und finanzwirtschaftlichen Herausforderungen, Frankfurt am Main: Peter Lang, 2008]
- No.55: *Nils Braakmann*: Differences in the earnings distribution of self- and dependent employed German men – evidence from a quantile regression decomposition analysis, July 2007
- No.54: *Joachim Waagner*: Export entry, export exit, and productivity in German Manufacturing Industries, June 2007
[published in: International Journal of the Economics of Business 15 (2008), 2, 169-180]
- No.53: *Nils Braakmann*: Wirkungen der Beschäftigungspflicht schwerbehinderter Arbeitnehmer – Erkenntnisse aus der Einführung des „Gesetzes zur Bekämpfung der Arbeitslosigkeit Schwerbehinderter“, Juni 2007
[revidierte Fassung erscheint in: Zeitschrift für Arbeitsmarktforschung/ Journal for Labour Market Research 41 (2008),1]
- No.52: *Jan Kranich und Ingrid Ott*: Regionale Spitzentechnologie auf internationalen Märkten, Juni 2007
[erscheint in: Merz, J. und Schulte, R. (Hrsg.): Neue Ansätze der MittelstandsForschung, Münster, 2007]
- No.51: *Joachim Wagner*: Die Forschungspotenziale der Betriebspaneldaten des Monatsberichts im Verarbeitenden Gewerbe, Mai 2007
[erscheint in: AStA – Wirtschafts- und Sozialwirtschaftliches Archiv]
- No.50: *Stefan Baumgärtner, Frank Jöst und Ralph Winkler*: Optimal dynamic scale and structure of a multi-pollution economy, May 2007
[forthcoming in: Ecological Economics]
- No.49: *Helmut Fryges und Joachim Wagner*: Exports and productivity growth – First evidence from a continuous treatment approach, May 2007
[forthcoming in: Review of World Economics]
- No.48: *Ulrich Kaiser und Joachim Wagner*: Neue Möglichkeiten zur Nutzung vertraulicher amtlicher Personen- und Firmendaten, April 2007
[publiziert in: Perspektiven der Wirtschaftspolitik 9 (2008), 3, 329-349]

- No.47: *Joachim Wagner*: Jobmotor Mittelstand? Arbeitsplatzdynamik und Betriebsgröße in der westdeutschen Industrie, April 2007
[publiziert in: Vierteljahrshefte zur Wirtschaftsforschung, 76 (2007), 3, 76-87]
- No.46: *Christiane Clemens und Maik Heinemann*: Credit Constraints, Idiosyncratic Risks, and the Wealth Distribution in a Heterogenous Agent Model, March 2007
- No.45: *Jan Kranich*: Biotechnologie und Internationalisierung. Ergebnisse der Online-Befragung, März 2007
- No.44: *Joachim Wagner*: Entry, exit and productivity. Empirical results for German manufacturing industries, March 2007
[forthcoming in: German Economic Review]
- No.43: *Joachim Wagner*: Productivity and Size of the Export Market Evidence for West and East German Plants, 2004, March 2007
[publiziert in: Jahrbücher für Nationalökonomie und Statistik, 227 (2007), 4, 403-408]
- No.42: *Joachim Wagner*: Why more West than East German firms export, March 2007
- No.41: *Joachim Wagner*: Exports and Productivity in Germany, March 2007
[publiziert in: Applied Economics Quarterly 53 (2007), 4, 353-373]
- No.40: *Lena Koller, Klaus Schnabel und Joachim Wagner*: Schwellenwerte im Arbeitsrecht. Höhere Transparenz und Effizienz durch Vereinheitlichung, Februar 2007
[publiziert in: Perspektiven der Wirtschaftspolitik, 8 (2007), 3, 242-255]
- No.39: *Thomas Wein und Wiebke B. Röber*: Sind ausbildende Handwerksbetriebe erfolgreicher?, Januar 2007
- No.38: *Institut für Volkswirtschaft*: Forschungsbericht 2006, Januar 2007
- No.37: *Nils Braakmann*: The impact of September 11th, 2001 on the job prospects of foreigners with Arab background – Evidence from German labor market data, January 2007
- No.36: *Jens Korunig*: Regulierung des Netzmonopolisten durch Peak-load Pricing?, Dezember 2006
- No.35: *Nils Braakmann*: Die Einführung der fachkundigen Stellungnahme bei der Ich-AG, November 2006
[erscheint in: Schulte, Reinhard: Neue Ansätze der MittelstandsForschung, Münster etc.: Lit, 2008]
- No.34: *Martin F. Quaas and Stefan Baumgärtner*: Natural vs. financial insurance in the management of public-good ecosystems, October 2006
[published in: Ecological Economics 65 (2008), 2, 397-406]
- No.33: *Stefan Baumgärtner and Martin F. Quaas*: The Private and Public Insurance Value of Conservative Biodiversity Management, October 2006
- No.32: *Ingrid Ott and Christian Papilloud*: Converging institutions. Shaping the relationships between nanotechnologies, economy and society, October 2006
[published in: Bulletin of Science, Technology & Society 2007 (27), 4, 455-466]
- No.31: *Claus Schnabel and Joachim Wagner*: The persistent decline in unionization in western and eastern Germany, 1980-2004: What can we learn from a decomposition analysis?, October 2006
[published in: Industrielle Beziehungen/The German Journal of Industrial Relations 14 (2007), 118-132]

- No.30: *Ingrid Ott and Susanne Soretz*: Regional growth strategies: fiscal versus institutional governmental policies, September 2006
[published in: *Economic Modelling* 25 (1008), 605-622]
- No.29: *Christian Growitsch and Heike Wetzel*: Economies of Scope in European Railways: An Efficiency Analysis, July 2006
- No.28: *Thorsten Schank, Claus Schnabel and Joachim Wagner*: Do exporters really pay higher wages? First evidence from German linked employer-employee data, June 2006
[published in: *Journal of International Economics* 72 (2007), 1, 52-74]
- No.27: *Joachim Wagner*: Markteintritte, Marktaustritte und Produktivität
Empirische Befunde zur Dynamik in der Industrie, März 2006
[publiziert in: *ASTA – Wirtschafts- und Sozialwirtschaftliches Archiv* 1 (2007), 3, 193-203]
- No.26: *Ingrid Ott and Susanne Soretz*: Governmental activity and private capital adjustment, March 2006
[forthcoming in: *Icfai Journal of Managerial Economics*]
- No.25: *Joachim Wagner*: International Firm Activities and Innovation: Evidence from Knowledge Production Functions for German Firms, March 2006
[published in: *The Icfai Journal of Knowledge Management* VI (2008), 2, 47-62]
- No.24: *Ingrid Ott and Susanne Soretz*: Nachhaltige Entwicklung durch endogene Umweltwahrnehmung, März 2006
publiziert in: Clemens, C., Heinemann, M. & Soretz, S., *Auf allen Märkten zu Hause (Gedenkschrift für Franz Haslinger)*, Marburg: Metropolis, 2006, 233-256
- No.23: *John T. Addison, Claus Schnabel, and Joachim Wagner*: The (Parlous) State of German Unions, February 2006
[published in: *Journal of Labor Research* 28 (2007), 3-18]
- No.22: *Joachim Wagner, Thorsten Schank, Claus Schnabel, and John T. Addison*: Works Councils, Labor Productivity and Plant Heterogeneity: First Evidence from Quantile Regressions, February 2006
[published in: *Jahrbücher für Nationalökonomie und Statistik* 226 (2006), 505 - 518]
- No.21: *Corinna Bunk*: Betriebliche Mitbestimmung vier Jahre nach der Reform des BetrVG: Ergebnisse der 2. Befragung der Mitglieder des Arbeitgeberverbandes Lüneburg Nordostniedersachsen, Februar 2006
- No.20: *Jan Kranich*: The Strength of Vertical Linkages, July 2006
- No.19: *Jan Kranich and Ingrid Ott*: Geographische Restrukturierung internationaler Wertschöpfungsketten – Standortentscheidungen von KMU aus regionalökonomischer Perspektive, Februar 2006
[publiziert in: Merz, J. und Schulte, R. (Hrsg.): *Fortschritte in der Mittelstandsforschung*, Münster, 2006, 113-129]
- No.18: *Thomas Wein und Wiebke B. Röber*: Handwerksreform 2004 – Rückwirkungen auf das Ausbildungsverhalten Lüneburger Handwerksbetriebe?, Februar 2006
- No.17: *Wiebke B. Röber und Thomas Wein*: Mehr Wettbewerb im Handwerk durch die Handwerksreform?, Februar 2006
- No.16: *Joachim Wagner*: Politikrelevante Folgerungen aus Analysen mit wirtschaftsstatistischen Einzeldaten der Amtlichen Statistik, Februar 2006
[publiziert in: *Schmollers Jahrbuch* 126 (2006) 359-374]

- No.15: *Joachim Wagner*: Firmenalter und Firmenperformance
Empirische Befunde zu Unterschieden zwischen jungen und alten Firmen
in Deutschland, September 2005
[publiziert in: Lutz Bellmann und Joachim Wagner (Hrsg.), Betriebsdemographie
(Beiträge zur Arbeitsmarkt- und Berufsforschung, Band 305), Nürnberg: IAB der BA,
83-111]
- No.14: *Joachim Wagner*: German Works Councils and Productivity:
First Evidence from a Nonparametric Test, September 2005
[published in: Applied Economics Letters 15 (2008), 727-730]
- No.13: *Lena Koller, Claus Schnabel und Joachim Wagner*: Arbeitsrechtliche Schwellenwerte und
betriebliche Arbeitsplatzdynamik: Eine empirische Untersuchung am Beispiel des
Schwerbehindertengesetzes, August 2005
[publiziert in: Zeitschrift für ArbeitsmarktForschung/ Journal for Labour Market Research
39 (2006), 181-199]
- No.12: *Claus Schnabel and Joachim Wagner*: Who are the workers who never joined a union?
Empirical evidence from Germany, July 2005
[published in: Industrielle Beziehungen/ The German Journal of Industrial Relations 13
(2006), 118-131]
- No.11: *Joachim Wagner*: Exporte und Produktivität in mittelständischen Betrieben
Befunde aus der niedersächsischen Industrie (1995 – 2004), June 2005
[publiziert in: Niedersächsisches Landesamt für Statistik, Statistische Berichte
Niedersachsen, Sonderausgabe: Tagung der NLS am 9. März 2006, Globalisierung und
regionale Wirtschaftsentwicklung - Datenlage und Datenbedarf in Niedersachsen.
Hannover, Niedersächsisches Landesamt für Statistik, Juli 2006, 18 – 29]
- No.10: *Joachim Wagner*: Der Noth gehorchend, nicht dem eignen Trieb.
Nascent Necessity and Opportunity Entrepreneurs in Germany.
Evidence from the Regional Entrepreneurship Monitor (REM), May 2005
[published in: RWI: Mitteilungen. Quarterly 54/ 55 (2003/04), 287-303
{published June 2006}]
- No. 9: *Gabriel Desgranges and Maik Heinemann*: Strongly Rational Expectations Equilibria with
Endogenous Acquisition of Information, March 2005
- No. 8: *Joachim Wagner*: Exports, Foreign Direct Investment, and Productivity: Evidence from
German Firm Level Data, March 2005
[published in: Applied Economics Letters 13 (2006), 347-349]
- No. 7: *Thomas Wein*: Associations' Agreement and the Interest of the Network Suppliers – The
Strategic Use of Structural Features, March 2005
- No. 6: *Christiane Clemens and Maik Heinemann*: On the Effects of Redistribution on Growth
and Entrepreneurial Risk-Taking, March 2005
- No. 5: *Christiane Clemens and Maik Heinemann*: Endogenous Redistributive Cycles – An
overlapping Generations Approach to Social Conflict and Cyclical Growth, March 2005
- No. 4: *Joachim Wagner*: Exports and Productivity: A Survey of the Evidence from Firm Level
Data, March 2005
[published in: The World Economy 30 (2007), 1, 60-82]

- No. 3: *Thomas Wein and Reimund Schwarze*: Is the Market Classification of Risk Always Efficient? - Evidence from German Third Party Motor Insurance, March 2005
- No. 2: *Ingrid Ott and Stephen J. Turnovsky*: Excludable and Non-Excludable Public Inputs: Consequences for Economic Growth, June 2005 (Revised version)
[published in: *Economica* 73 (2006), 292, 725-742
also published as CESifo Working Paper 1423]
- No. 1: *Joachim Wagner*: Nascent and Infant Entrepreneurs in Germany.
Evidence from the Regional Entrepreneurship Monitor (REM), March 2005
[erschienen in: Joachim Merz, Reinhard Schulte (Hrsg.), *Neue Ansätze der MittelstandsForschung*, Berlin: Lit Verlag 2008, S.395-411]

Leuphana Universität Lüneburg
Institut für Volkswirtschaftslehre
Postfach 2440
D-21314 Lüneburg
Tel.: ++49 4131 677 2321
email: brodt@leuphana.de
www.leuphana.de/vwl/papers