New Methods for the Analysis of Links between International Firm Activities and Firm Performance: A Practitioner's Guide

Wagner, Joachim

Publication date:
2012

Document Version
Publisher's PDF, also known as Version of record

WORKING PAPER

New Methods for the Analysis of Links between International Firm Activities and Firm Performance: A Practitioner's Guide

by

Joachim Wagner

University of Lüneburg
Working Paper Series in Economics

No. 227

January 2012

www.leuphana.de/institute/ivwl/publikationen/working-papers.html

ISSN 1860 - 5508

New Methods for the Analysis of Links between International Firm Activities and Firm Performance: A Practitioner's Guide*

Joachim Wagner

Leuphana University Lueneburg and IZA, Bonn

[This version: January 9, 2012]

Abstract:

This paper is a non-technical introduction to the use of three micro-econometric tools that have only recently been applied in empirical investigations of the links between international firm activities and firm performance. It shows *why* it is important to use these methods, *how* to use them in practice and *which new insights* are found in empirical applications. Topics include the role of extremely different firms (or outliers) in the computation of performance premia of internationally active firms; different performance premia over the distribution of the performance variable when unobserved heterogeneity matters; and the analysis of causal effects of different intensities of international firm activity on firm performance.

JEL classification: F14, C21, C23

Keywords: Robust fixed effects estimation, fixed-effects quantile regression, generalized propensity score, international firm activity, firm performance

* I thank my co-authors Helmut Fryges, David Powell and Vincenzo Verardi for introducing me to the tricks of the trade applied in our joint papers.

Prof. Dr. Joachim Wagner
Leuphana University Lueneburg
Institute of Economics
P.O. Box 2440
D-21314 Lueneburg, Germany

e-mail: wagner@leuphana.de
www: http://www.leuphana.de/joachim-wagner.html

1. Introduction

The literature on the mutual links between international firm activities and firm performance grows exponentially. This paper does not summarize what we learn from this literature.[1] Instead it attempts to provide a non-technical introduction to the use of three micro-econometric tools that have only recently been applied in empirical investigations of the links between international firm activities and firm performance. The focus is on the application of these tools – for any technical details the reader is referred to the literature. In this paper it is discussed *why* it is important to use these methods, *how* to use them in practice and *which new insights* are found in empirical investigations that apply these methods. The paper is aimed at readers who are familiar with the topics dealt with and the concepts, terms and methods used in the recent literature on international firm activities and firm performance. It is written as a practitioner's guide that might hopefully help to stimulate the broader application of the methods discussed.

To motivate this endeavor, consider empirical studies of the productivity differences between exporters and non-exporters, a classical topic in the literature on international activities of heterogeneous firms since the seminal pioneering empirical papers by Bernard and Jensen (1995, 1999) and the canonical theoretical contribution by Melitz (2003). The standard approach in empirical studies of the so-called exporter productivity premium uses OLS regression (with or without fixed firm effects to control for time invariant unobserved heterogeneity) to identify productivity differences between exporters and non-exporters at a point in time (including tests for

[1] See Redding (2010) for a survey of the theoretical developments; first generation surveys of the empirical literature are Greenaway and Kneller (2007) and Wagner (2007), more recent studies are summarized in Bernard et al. (2011) and Wagner (2012a).

self-selection of more productive firms into exporting) and OLS regression plus propensity score matching methods to investigate causal effects of starting to export on productivity growth and to test for learning-by-exporting (see Wagner (2007)). Several studies step beyond a comparison of (unconditional or conditional) mean values of productivity between exporters and non-exporters. Some of these papers apply the non-parametric Kolmogorov-Smirnov test for differences in the whole unconditional productivity distribution between groups of firms that has been introduced to the literature on exports and productivity by Delgado, Farinas and Ruano (2002). Other studies use quantile regression for an evaluation of the size of the exporter premium at different points of the conditional productivity distribution (see Wagner (2011a) for a summary of these studies and illustrative examples with German data). In a growing number of empirical studies all of the methods mentioned are used to investigate the links between other forms of international firm activities besides exports (imports, foreign direct investments, offshoring) and other dimensions of firm performance besides productivity (profitability, wages paid, growth, survival), too.

In recent research it is demonstrated that these “traditional” methods do not deal with firm heterogeneity in an adequate way when it comes to the study of international firm activities and firm performance, and more appropriate methods are suggested. These new approaches are the topic of this paper. Section 2 considers the role of extremely different firms (or outliers) in the computation of performance premia of internationally active firms. Section 3 looks at different performance premia over the distribution of the performance variable when unobserved heterogeneity matters. Section 4 deals with the analysis of causal effects of different intensities of international firm activity on firm performance (for example, the effects of different

shares of exports in total sales contrary to the effects of exporting or not). Section 5 concludes.

2. Extremely different firms (outliers)

In a sample of heterogeneous firms often values for some variables for some firms are far away from the other observations in the sample. For example, in a sample of exporting and non-exporting firms one usually has a few firms with labour productivity values that are extremely low or extremely high compared to the mean values. These extreme values might be the result of reporting errors (and, therefore, wrong), or due to idiosyncratic events (like in the case of a shipyard that produces a ship over a long time and that reports the sales in the year when the ship is completed and delivered), or due to firm behavior that is vastly different from the behavior of the majority of firms in the sample. Observations of this kind are termed outliers. Whatever the reason may be, extreme values of labour productivity may have a large influence on the mean value of labour productivity computed for the exporters and non-exporters in the sample, on the tails of the distribution of labour productivity, and, therefore, on the estimates of the exporter productivity premium. Conclusions with regard to the productivity differences between exporters and non-exporters, therefore, might be influenced by a small number of firms with extremely high or low values of productivity, and the same is true for any other empirical investigation using data for a sample of heterogeneous firms.

Researchers from the field of micro-economics of international firm activities usually are aware of all of this. Given that due to confidentiality of the firm level data single observations as a rule cannot be inspected closely enough to detect and correct reporting errors, or to understand the idiosyncratic events that lead to extreme

values, a widely used procedure to keep these extreme observations from shaping the results is to drop the observations from the top and bottom one percent of the distribution of the variable under investigation. A case in point is the international comparison study on the exporter productivity premium by the International Study Group on Exports and Productivity (ISGEP) (2008, p. 610).

Dropping the firms from the top and the bottom one percent of the productivity distribution and comparing the results of empirical investigations with and without these firms with extremely high or extremely low values of labour productivity might be considered as a first and useful step to check the sensitivity of results. However, although this approach seems to be rather popular it is in some sense arbitrary. Why the top and bottom one percent? Why not choose a larger or smaller cut-off point? There are alternative approaches to deal with extreme observations (outliers) that are substantiated in statistics.[2]

Wagner (2011a) reports results for the exporter premium computed for a cross-section sample of 618 German manufacturing firms using OLS and various methods that are designed to deal with outliers (Least Absolute Deviations (LAD) regression, Huber M-estimator, fully robust MM-estimator). The estimated labour productivity premium is statistically highly significant and large from an economic point of view for all estimators applied. The estimated size, however, differs considerably. The estimated premium from the fully robust MM-estimator is considerably lower than the values from both OLS and LAD applied to the full or the

[2] A discussion of these methods is beyond the scope of this paper; see Verardi and Croux (2009) for an introduction with a view on applications (plus Stata code) and for references to the theoretical literature.

trimmed sample without the firms from the top/bottom one percent of the productivity distribution.

Similar large differences in the estimated productivity premia with respect to the way outliers are treated are reported in Wagner (2011b) when groups of firms from services industries with different forms of international activities (none, exports, foreign direct investments) are compared. Furthermore, evidence is not limited to productivity premia. Wagner (2012b) looks at profitability premia of exporters, importers and two-way traders (firms that both export and import) and documents that outliers do have a large impact on the estimation results. This illustrates that it is important to document the extent to which estimation results are influenced by extreme observations.

Thus far the consequences of observed firm heterogeneity for micro-econometric studies of international firm activities are considered. Firm heterogeneity, however, might be caused by factors that are either not observed by the researcher and that, therefore, are not included in the empirical model, or that are unobservable to a researcher. A case in point with regard to the exporter productivity premium is management quality. In the data sets used to empirically investigate international firm activities variables that measure management quality are missing. This would not pose a big problem if management quality would be uncorrelated with the other variables included in the empirical model (e.g., the exporter status) – of course it would not be possible to investigate the role of management quality for productivity differences between firms empirically, but the estimated coefficient for the exporter dummy variable would be an unbiased estimate of the exporter productivity premium (given all other assumptions for the applicability of OLS are fulfilled). However, one would not expect that management quality is uncorrelated

with either the exporter status or other variables like firm size. Not controlling for management quality then leads to biased estimates for the exporter premium.

A standard solution for this problem that is widely used in the literature on the micro-econometrics of international firm activities is the estimation of fixed effects models for panel data. Using pooled cross-section time-series data for firms and including fixed firm effects in the empirical model allows to control for time invariant unobserved firm heterogeneity, and to estimate the coefficients for the time variant variables that are included in the models without any bias caused by the non-inclusion of the unobserved variables that are correlated with these included variables. A case in point is the paper by ISGEP (2008), were in Table 4 exporter productivity premia are reported based on empirical models with and without fixed effects. If fixed firm effects are added to control for time invariant unobserved heterogeneity the point estimates of the exporter productivity premia are much smaller compared to the results based on pooled data only.

Thus, unobserved firm heterogeneity does matter. Is it possible to tackle both aspects of firm heterogeneity - outliers and unobserved heterogeneity - simultaneously? A highly robust MM-estimator for panel data with fixed effects has been proposed recently by Bramati and Croux (2007). While a discussion of details of this estimator is beyond the scope of this paper the underlying idea is to center the series of observations for a firm in a similar way to what is generally done when applying the within transformation that is used to estimate a fixed effects model. The difference here is that the series are centered by removing the median instead of demeaning because the mean is largely distorted by outliers. Having centered the series, a robust estimator can be applied to deal with atypical individuals. The

outcoming results will be comparable to those of a fixed effects estimator but will not be distorted by the presence of atypical individuals.

Verardi and Wagner (2011) apply this newly developed method to the estimation of exporter productivity premia for firms from manufacturing industries in West Germany and compare the results to those from using the standard fixed effects estimator.[3] 3.07 percent of the enterprises are identified to be outliers. Dropping these outliers leads to a drastic change in the estimation results for the exporter productivity premium and to a dramatic change in the conclusions drawn: While in the standard fixed effects model the estimated exporter premium is statistically highly significant and large from an economic point of view, taking on a value of 13.43 percent, this estimate (while still statistically highly significant) drops to 0.997 percent when the same model is estimated using the robust fixed effects method. According to the results from the robust fixed effects regression there is no such thing as a large exporter productivity premium!

Verardi and Wagner (2012) report similar results in a study on the exporter premia in a sample of firms from manufacturing industries by destination of exports (euro-zone vs. non-euro zone). Vogel and Wagner (2011) show that this result holds for firms from services industries, too. They find that the estimated exporter productivity premium is statistically significant and relevant from an economic point of view when a standard fixed effects estimator is used to control for unobserved firm characteristics, but that it drops to zero when a robust estimator is applied. This

[3] The Stata-code for the robust estimation of a linear model with fixed effects and a file describing the use of the command is available from the web; see: repec.wirtschaft.uni-giessen.de/~repec/RePEc/jns/Datenarchiv/v231y2011i4/y231y2011i4p546_557/.

demonstrates that outliers can drive results from an empirical study with heterogeneous firms.

Furthermore, Verardi and Wagner (2011) show in a Monte Carlo study that the standard procedure of trimming the data by deleting the observations from the top/bottom one percent of the productivity distribution leads to biased estimations. Therefore, the newly available method of robust estimation of linear fixed effects models should be considered as a valuable add-on to the box of tools for empirically analyzing performance differentials between heterogeneous firms with different forms of international activities.

3. Exporter premia along the productivity distribution

The positive exporter productivity premium that is reported in almost all empirical studies (surveyed in Wagner (2007)) is usually estimated at the conditional mean of the productivity distribution. This positive mean premium is one consequence of the seminal Melitz (2003) model. Furthermore, the Melitz (2003) model predicts a clear dividing line between exporting and non-exporting firms according to productivity. Firm-level micro-data, however, show that both exporters and non-exporters tend to be highly heterogeneous. There are many low productivity exporters and many high productivity non-exporters (for Germany, see Powell and Wagner (2011)). This points to the existence of other factors besides productivity that are important for the decision of a firm to export or not. Looking at the exporter productivity premium at different points in the productivity distribution, therefore, can help to understand whether a central policy implication of the Melitz (2003) model is still valid when there are other drivers of export besides productivity, namely that a reduction in trade barriers leads to exit of low-productive firms and a reallocation of output and

employment towards firms with a higher productivity, thereby fostering productivity and growth in an economy.

In the literature on exports and productivity quantile regression (described in detail in Koenker (2005)) has been used for an evaluation of the size of the exporter premium at different points of the conditional productivity distribution. Until recently it was not feasible to control for unobserved heterogeneity via fixed firm effects in a quantile regression. Powell and Wagner (2011) apply a new method for quantile regression for panel data developed by Powell (2009) to estimate the exporter productivity premium at quantiles of the productivity distribution for manufacturing enterprises in Germany.[4]

In West Germany the productivity premium of exporters over non-exporters is statistically different from zero at each quantile of the productivity distribution, and this holds for East Germany, too, with the exception of the very high end. While the premium tends to be small (but not negligible) over large parts of the distribution from the 30th percentile onwards where it is about 5 percent, it is much larger at the lower end. For the 5th percentile the estimate in favor of the exporters is 29.0 percent in West Germany and 33.1 percent in East Germany, and the corresponding figure at the 10th percentile is 15.6 percent in both parts of Germany.

Powell and Wagner (2011) argue that the finding that the exporter productivity premium is positive, statistically significant and of an order of magnitude that is relevant from an economic point of view all over the productivity distribution is important because it shows that the central policy implication of the Melitz (2003) model is still valid here with the presence of low productivity exporters and high productivity non-exporters: a reduction in trade barriers leads to an increase in

[4] Stata code for this estimator is available from David Powell (dpowell@ rand.org).

productivity. They note that the estimates of the exporter premia decrease substantially when fixed effects are included, suggesting that existing estimates in the literature are biased due to unobserved firm heterogeneity. However, the pattern of the results survives – the effect is largest at the bottom of the productivity distribution.

These interesting and important new insights demonstrate that the newly available method for quantile regression in a linear fixed effects models should be considered as another valuable add-on to the box of tools for empirically analyzing international activities of heterogeneous firms.

4. The causal effect of international firm activities on firm performance reconsidered: A continuous treatment approach

Previous empirical studies (reviewed in Wagner (2007)) show that exporting does not necessarily improve productivity. One possible reason for this result is that most previous studies are restricted to analyzing the relationship between a firm's export *status* and the growth of its labour productivity, using the firms' export status as a binary treatment variable and comparing the performance of exporting and non-exporting firms. Exporting firms, however, are different from each other. While there are firms that only occasionally receive some unsolicited export orders, others export regularly but exports are not decisive for growth or survival of these firms, and other firms pro-actively exploit foreign markets and generate a high percentage of their total sales from exports. It seems plausible to expect that any effect of exporting on firm performance differs between these groups of firms, and between firms with different shares of exports in total sales in general.

In a series of papers Fryges (2009), Fryges and Wagner (2008, 2010) and Vogel and Wagner (2010) apply the newly developed generalised propensity score

(GPS) methodology by Hirano and Imbens (2004) that allows for continuous treatment, that is, different levels of the firms' export activities.[5] Using the GPS method and a large panel data set for German manufacturing firms Fryges and Wagner (2008) estimate the relationship between a firm's export-sales ratio and its labour productivity growth rate. They find that there is a causal effect of firms' export activities on labour productivity growth. However, exporting improves labour productivity growth only within a sub-interval of the range of firms' export-sales ratios. Furthermore, they report that the relationship between labour productivity growth and the export-sales ratio is not stable over the various years the dose-response functions are estimated for.

In a companion paper Fryges and Wagner (2010) conduct the first comprehensive empirical study on the relationship between exports and profitability. They document a positive profitability differential of exporters compared to non-exporters that is statistically significant, though rather small, when observed firm characteristics and unobserved firm specific effects are controlled for. In contrast to nearly all empirical studies on the relationship between productivity and exports they do not find any evidence for self-selection of more profitable firms into export markets. Due to the sampling frame of the data used they cannot test the hypothesis that firms which start exporting perform better in the years after the start than their counterparts which do not start. Instead, they use the continuous treatment approach and show that exporting improves the profitability almost over the whole range of the export-sales ratio. This means, that the usually observed higher productivity of

[5] A discussion of this method is beyond the scope of this paper; see Fryges and Wagner (2008) for an outline. Stata code for the GPS method is presented in Bia and Mattei (2008).

exporters is not completely absorbed by the extra costs of exporting or by higher wages paid by internationally active firms.

Vogel and Wagner (2010) use the unique recently released German business services statistics panel to conduct the first comprehensive empirical study on the relationship between exports and profitability for the business services sector. They document a negative profitability differential of services exporters compared to non-exporters that is statistically significant, though rather small, when observed firm characteristics and unobserved firm specific effects are controlled for. They find that export-starters in services are less profitable than non-starters, even two years before they begin to export, pointing to self-selection of less profitable firms into export markets. They then use a continuous treatment approach to investigate the causal impact of exports on profits. The estimated dose-response function shows an s-shaped relationship between profitability in 2005 and firms' export-sales ratio in 2004. Enterprises with a very small share of exports in total sales have a lower rate of profit than non-exporting firms. Then, with an increase in export intensity the rate of profit increases, too. However, even at the maximum the average profitability of the exporters is not, or only slightly, higher than the average rate of profit of the non-exporting firms.

All these studies reveal important findings that cannot be uncovered using the standard approach that applies propensity score matching and compares export starters (or firms that start any other kind of international activity) and observational identical non-starters over the years after the start to compute the average treatment effect on the treated and to draw conclusions with regard to a causal effect of a type of international firm activity on a dimension of firm performance.

5. Concluding remarks

The studies summarized in this paper demonstrate that the new econometric methods used therein should be considered as valuable add-ons to the box of tools when the links between different forms of international firm activities and various dimensions of firm performance are investigated empirically. Given that all of these studies use firm level data from Germany, however, the results reported should not be considered as newly uncovered stylized facts.

A case in point is the vanishing exporter productivity premium found in Verardi and Wagner (2011, 2012) for firms from manufacturing industries and in Vogel and Wagner (2011) for business services firms when models with fixed effects are estimated with the robust method that takes care of outliers. What we urgently need here are results from studies that use an approach labeled *scientific replication* by Hamermesh (2007, p. 727); this approach means “re-examining an idea in some published research by studying it using a different data set chosen from a different population from that used in the original paper”. Results generated from data for one economy in one period cannot generally be expected to hold for another economy or the same economy in another period due to differences in institutions or its changes over time, or to time and region specific shocks. “If our theories are intended to be general, to describe the behavior of consumers, firms, or markets independent of the social or broader economic context, they should be tested using data from more than just one economy” (Hamermesh 2007, p. 728). To put it differently, and again quoting Hamermesh (2000, p. 376), “the credibility of a new finding that is based on carefully analyzing two data sets is far more than twice that of a result based only on one.” This seems to be an important area for future research.

References

Bernard, Andrew B. and J. Bradford Jensen (1995), Exporters, Jobs, and Wages in U.S. Manufacturing: 1976 – 1987. *Brookings Papers on Economic Activity, Microeconomics* 1, 67-119.

Bernard, Andrew B. and J. Bradford Jensen (1999), Exceptional exporter performance: cause, effect, or both? *Journal of International Economics* 47 (1), 1-25.

Bernard, Andrew B., J. Bradford Jensen, Stephen J. Redding and Peter K. Schott (2011), The Empirics of Firm Heterogeneity and International Trade. National Bureau of Economic Research NBER Working Paper 17627, November.

Bia, Michela and Alessandra Mattei (2008), A Stata package for the estimation of the dose-response function through adjustment for the generalized propensity score. *The Stata Journal* 8 (3), 354-373.

Bramati, Caterina Maria and Christophe Croux (2007), Robust estimators for the fixed effects panel data model. *Econometrics Journal* 10 (3), 521-540.

Delgado, Miguel A., Jose C. Farinas and Sonia Ruano (2002), Firm productivity and export markets: a non-parametric approach. *Journal of International Economcis* 57 (2), 397-422.

Fryges, Helmut (2009), The Export-Growth Relationship: Estimating a Dose-Response Function. *Applied Economics Letters* 16 (18), 1855-1859.

Fryges, Helmut and Joachim Wagner (2008), Exports and Productivity Growth: First Evidence from a Continous Treatment Approach. *Review of World Economics* 144 (4), 695-722.

Fryges, Helmut and Joachim Wagner (2010), Exports and Profitability: First Evidence for German Manufacturing firms. *The World Economy* 33 (3), 399-423.

Greenaway, David and Richard Kneller (2007), Firm Heterogeneity, Exporting and Foreign Direct Investment. *Economic Journal* 117 (February), F134-F161.

Hamermesh, Daniel S. (2000), The craft of labormetrics. *Industrial and Labor Relations Review* 53 (3), 363-380.

Hamermesh, Daniel S. (2007), Viewpoint: Replication in economics. *Canadian Journal of Economics* 40 (3), 715-733.

Hirano, Keisuke and Guido W. Imbens (2004). *The Propensity Score with Continuous Treatments*. in: Gelman, Andrew and Xiao-Li Meng (eds.). Applied Bayesian Modeling and Causal Inference from Incomplete-Data Perspectives, Chichester: Wiley, 73-84.

International Study Group on Exports and Productivity (ISGEP) (2008), Understanding Cross-Country Differences in Exporter Premia: Comparable Evidence for 14 Countries. *Review of World Economics* 144 (4), 596-635.

Koenker, Roger (2005), *Quantile Regression*. Cambridge etc.: Cambridge University Press.

Melitz, Mark J. (2003), The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity. *Econometrica* 71 (6), 1695-1725.

Powell, David (2009), Unconditional Quantile Regression for Panel Data with Exogenous or Endogenous Regressors. RAND Working Paper WR-710, October.

Powell, David and Joachim Wagner (2011), The Exporter Productivity Premium along the Productivity Distribution: Evidence from Unconditional Quantile Regression with Firm Fixed Effects. RAND Working Paper WR-837, February.

Redding, Stephen J. (2010), Theories of Heterogeneous Firms and Trade. National Bureau of Economic Research NBER Working Paper 16562, December.

Verardi, Vincenzo and Christophe Croux (2009), Robust regression in Stata. *The Stata Journal* 9 (3), 439-453.

Verardi, Vincenzo and Joachim Wagner (2011), Robust Estimation of Linear Fixed Effects Panel Data Models with an Application to the Exporter Productivity Premium. *Jahrbücher für Nationalökonomie und Statistik* 231 (4), 546-557.

Verardi, Vincenzo and Joachim Wagner (2012), Productivity premia for German manufacturing firms exporting to the Euro-area and beyond: First Evidence from robust fixed effects estimations. *The World Economy* (in press; DOI: 10.1111/j.1467-9701.2011.01414.x)

Vogel, Alexander and Joachim Wagner (2010), Exports and Profitability – First Evidence for German Business Services Enterprises. *Applied Economics Quarterly* 56 (1), 7-30.

Vogel, Alexander and Joachim Wagner (2011), Robust estimates of exporter productivity premia in German business services enterprises. *Economic and Business Review* 13 (1-2), 7-26.

Wagner, Joachim (2007), Exports and Productivity: A Survey of the Evidence from Firm-Level Data. *The World Economy* 30 (1), 60-82.

Wagner, Joachim (2011a), From Estimation Results to Stylized Facts. Twelve Recommendations for Empirical Research in International Activities of Heterogeneous Firms. *De Economist* 159 (4), 389-412.

Wagner, Joachim (2011b), Exports, Foreign Direct Investments and Productivity: Are Services Firms different? University of Lüneburg Working Paper Series in Economics 215, September.

Wagner, Joachim (2012a), International trade and firm performance: a survey of empirical studies since 2006. *Review of World Economics* (in press; DOI : 10.1007/s10290-011-0116-8)

Wagner, Joachim (2012b), Exports, Imports and Profitability: First Evidence for Manufacturing Enterprises. *Open Economies Review* (in press; DOI: 10.1007/s11079-011-9235-z)

Working Paper Series in Economics

(recent issues)

No.226: *Alexander Vogel* and *Joachim Wagner*: The Quality of the KombiFiD-Sample of Business Services Enterprises: Evidence from a Replication Study, January 2012

No.225: *Stefanie Glotzbach*: Environmental justice in agricultural systems. An evaluation of success factors and barriers by the example of the Philippine farmer network MASIPAG, January 2012

No.224: *Joachim Wagner*: Average wage, qualification of the workforce and export performance in German enterprises: Evidence from KombiFiD data, January 2012

No.223: *Maria Olivares* and *Heike Wetzel*: Competing in the Higher Education Market: Empirical Evidence for Economies of Scale and Scope in German Higher Education Institutions, December 2011

No.222: *Maximilian Benner*: How export-led growth can lead to take-off, December 2011

No.221: *Joachim Wagner* and *John P. Weche Gelübcke*: Foreign Ownership and Firm Survival: First evidence for enterprises in Germany, December 2011

No.220: *Martin F. Quaas, Daan van Soest,* and *Stefan Baumgärtner*: Complementarity, impatience, and the resilience of natural-resource-dependent economies, November 2011

No.219: *Joachim Wagner*: The German Manufacturing Sector is a Granular Economy, November 2011

No.218: *Stefan Baumgärtner, Stefanie Glotzbach, Nikolai Hoberg, Martin F. Quaas, and Klara Stumpf*: Trade-offs between justices , economics, and efficiency, November 2011

No.217: *Joachim Wagner*: The Quality of the KombiFiD-Sample of Enterprises from Manufacturing Industries: Evidence from a Replication Study, November 2011

No.216: *John P. Weche Gelübcke*: The Performance of Foreign Affiliates in German Manufacturing: Evidence from a new Database, November 2011

No.215: *Joachim Wagner*: Exports, Foreign Direct Investments and Productivity: Are services firms different?, September 2011

No.214: *Stephan Humpert and Christian Pfeifer*: Explaining Age and Gender Differences in Employment Rates: A Labor Supply Side Perspective, August 2011

No.213: *John P. Weche Gelübcke*: Foreign Ownership and Firm Performance in German Services: First Evidence based on Official Statistics, August 2011
[forthcoming in: The Service Industries Journal]

No.212: *John P. Weche Gelübcke*: Ownership Patterns and Enterprise Groups in German Structural Business Statistics, August 2011
[forthcoming in: Schmollers Jahrbuch / Journal of Applied Social Science Studies]

No.211: *Joachim Wagner*: Exports, Imports and Firm Survival: First Evidence for manufacturing enterprises in Germany, August 2011

No.210: *Joachim Wagner*: International Trade and Firm Performance: A Survey of Empirical Studies since 2006, August 2011

No.209: *Roland Olbrich, Martin F. Quaas, and Stefan Baumgärtner*: Personal norms of sustainability and their impact on management – The case of rangeland management in semi-arid regions, August 2011

No.208: *Roland Olbrich, Martin F. Quaas, Andreas Haensler and Stefan Baumgärtner*: Risk preferences under heterogeneous environmental risk, August 2011

No.207: *Alexander Vogel and Joachim Wagner*: Robust estimates of exporter productivity premia in German business services enterprises, July 2011 [published in: Economic and Business Review, 13 (2011), 1-2, 7-26]

No.206: *Joachim Wagner*: Exports, imports and profitability: First evidence for manufacturing enterprises, June 2011

No.205: *Sebastian Strunz*: Is conceptual vagueness an asset? Resilience research from the perspective of philosophy of science, May 2011

No.204: *Stefanie Glotzbach*: On the notion of ecological justice, May 2011

No.203: *Christian Pfeifer*: The Heterogeneous Economic Consequences of Works Council Relations, April 2011

No.202: *Christian Pfeifer, Simon Janssen, Philip Yang and Uschi Backes-Gellner*: Effects of Training on Employee Suggestions and Promotions in an Internal Labor Market, April 2011

No.201: *Christian Pfeifer*: Physical Attractiveness, Employment, and Earnings, April 2011

No.200: *Alexander Vogel*: Enthüllungsrisiko beim Remote Access: Die Schwerpunkteigenschaft der Regressionsgerade, März 2011

No.199: *Thomas Wein*: Microeconomic Consequences of Exemptions from Value Added Taxation – The Case of Deutsche Post, February 2011

No.198: *Nikolai Hoberg* and *Stefan Baumgärtner*: Irreversibility, ignorance, and the intergenerational equity-efficiency trade-off, February 2011

No.197: *Sebastian Schuetz*: Determinants of Structured Finance Issuance – A Cross-Country Comparison, February 2011

No.196: *Joachim Fünfgelt and Günther G. Schulze*: Endogenous Environmental Policy when Pollution is Transboundary, February 2011

No.195: *Toufic M. El Masri*: Subadditivity and Contestability in the Postal Sector: Theory and Evidence, February 2011

No.194: *Joachim Wagner*: Productivity and International Firm Activities: What do we know?, January 2011 [published in: Nordic Economic Policy Review, 2011 (2), 137-161]

No.193: *Martin F. Quaas* and *Stefan Baumgärtner*: Optimal grazing management rules in semi-arid rangelands with uncertain rainfall, January 2011

No.192: *Institut für Volkswirtschaftslehre*: Forschungsbericht 2010, Januar 2011

No.191: *Natalia Lukomska, Martin F. Quaas and Stefan Baumgärtner*: Bush encroachment control and risk management in semi-arid rangelands, December 2010

No.190: *Nils Braakmann:* The causal relationship between education, health and health related behaviour: Evidence from a natural experiment in England, November 2010

No.189: *Dirk Oberschachtsiek and Britta Ulrich:* The link between career risk aversion and unemployment duration: Evidence of non-linear and time-depending pattern, October 2010

No.188: *Joachim Wagner:* Exports and Firm Characteristics in German Manufacturing industries, October 2010

No.187: *Joachim Wagner:* The post-entry performance of cohorts of export starters in German manufacturing industries, September 2010

No.186: *Joachim Wagner:* From estimation results to stylized facts: Twelve recommendations for empirical research in international activities of heterogenous firms, September 2010 [published in: De Economist, 159 (2011), 4, 389-412]

No.185: *Franziska Dittmer and Markus Groth:* Towards an agri-environment index for biodiversity conservation payment schemes, August 2010

No.184: *Markus Groth:* Die Relevanz von Ökobilanzen für die Umweltgesetzgebung am Beispiel der Verpackungsverordnung, August 2010

No.183: *Yama Temouri, Alexander Vogel and Joachim Wagner:* Self-Selection into Export Markets by Business Services Firms – Evidence from France, Germany and the United Kingdom, August 2010

No.182: *David Powell and Joachim Wagner:* The Exporter Productivity Premium along the Productivity Distribution: First Evidence from a Quantile Regression for Fixed Effects Panel Data Models, August 2010

No.181: *Lena Koller, Claus Schnabel und Joachim Wagner:* Beschäftigungswirkungen arbeits- und sozialrechtlicher Schwellenwerte , August 2010
[publiziert in: Zeitschrift für Arbeitsmarktforschung 44(2011), 1-2, 173-180]

No.180: *Matthias Schröter, Markus Groth und Stefan Baumgärtner:* Pigous Beitrag zur Nachhaltigkeitsökonomie, Juli 2010

No.179: *Norbert Olah, Thomas Huth and Dirk Löhr:* Monetary policy with an optimal interest structure, July 2010

No.178: *Sebastian A. Schütz:* Structured Finance Influence on Financial Market Stability – Evaluation of Current Regulatory Developments, June 2010

No.177: *Franziska Boneberg:* The Economic Consequences of One-third Co-determination in German Supervisory Boards: First Evidence from the German Service Sector from a New Source of Enterprise Data, June 2010
[forthcoming in: Schmollers Jahrbuch / Journal of Applied Social Science Studies]

No.176: *Nils Braakmann:* A note on the causal link between education and health – Evidence from the German short school years, June 2010

No.175: *Torben Zülsdorf, Ingrid Ott und Christian Papilloud:* Nanotechnologie in Deutschland – Eine Bestandsaufnahme aus Unternehmensperspektive, Juni 2010

No.174: *Nils Braakmann:* An empirical note on imitative obesity and a puzzling result, June 2010

No.173: *Anne-Kathrin Last and Heike Wetzel:* Baumol's Cost Disease, Efficiency, and Productivity in the Performing Arts: An Analysis of German Public Theaters, May 2010
[revised version published in: Journal of Cultural Economics, 35 (3), 185-201, 2011]

No.172: *Vincenzo Verardi and Joachim Wagner:* Productivity premia for German manufacturing firms exporting to the Euro-area and beyond: First evidence from robust fixed effects estimations, May 2010 [forthcoming in: The World Economy]

No.171: *Joachim Wagner:* Estimated capital stock values for German manufacturing enterprises covered by the cost structure surveys, May 2010
[published in: Schmollers Jahrbuch / Journal of Applied Social Science Studies 130 (2010), 3, 403-408]

(see www.leuphana.de/institute/ivwl/publikationen/working-papers.html for a complete list)

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

www.leuphana.de/institute/ivwl/publikationen/working-papers.html