Multiple import sourcing

First evidence for German enterprises from

manufacturing industries

by

Joachim Wagner

WORKING PAPER

Multiple import sourcing

First evidence for German enterprises from manufacturing industries

Joachim Wagner*

Leuphana University Lueneburg and CESIS, KTH, Stockholm

wagner@leuphana.de

[This version: January 2, 2017]

Abstract:

This paper uses information on import transactions by German firms from 2009 to 2012 merged with information on characteristics of the importers taken from surveys by the Statistical Offices to document that a large share of importers engage in multiple import sourcing by importing the same good from more than one source country in a year and that a large share of total imports is due to multiple sourcing. It is shown that the probability of multiple import sourcing and the share of imports from multiple sourcing in total imports increase with firm productivity and firm size after controlling for detailed industry affiliation.

Joachim Wagner
Leuphana University Lueneburg
PO Box 2440
D-21314 Lueneburg

1.   Motivation

Firms from manufacturing industries that import inputs can use different sourcing strategies. One alternative is to buy a certain good from one single supplier in one foreign country only and by doing so to engage in single sourcing. The other alternative is to buy a certain good from different suppliers in different countries and to engage in multiple import sourcing. While single import sourcing from the supplier who delivers a good of a given quality at the lowest price minimizes the costs paid for inputs, following this strategy may come at a high price. If the traded good is highly important for the importing firm and if it is difficult to find an alternative supplier in the short run the single foreign supplier is in a position to blackmail the importer by demanding a higher price that might increase the costs of the importer considerably. Furthermore, sometimes the foreign firm may not be able to supply a sufficient quantity of the input for reasons that the supplier is not responsible for – from strikes to natural disasters. A way out is to diversify and to engage in multiple import sourcing. However, this comes at a cost, too. Adding suppliers means, among others, that these further suppliers have to be searched, contracts have to be negotiated, details of the technical specification of the goods have to be fixed and the quality of these goods delivered by a new supplier have to be controlled. For an importing firm, therefore, the optimal sourcing strategy for an input might be either single sourcing or multiple sourcing.

The number of countries of origin a firm imports a good from in a year is an extensive margin of imports of a firm that has, to the best of my knowledge, not been investigated empirically before.[1] This paper contributes to the literature by using

---

[1] Two comprehensive reviews of the business economics literature on importing by Quintens et al. (2006) and Aykol et al. (2013) do not mention empirical studies on multiple import sourcing. In the economics literature extensive margins of imports of a firm that have been investigated empirically

information on import transactions by German firms from 2009 to 2012 merged with information on characteristics of the importers taken from surveys by the Statistical Offices to document the share of importers engaged in multiple import sourcing by importing the same good from more than one source country in a year[2] and the share of total imports that is due to multiple sourcing. Furthermore, the paper looks at the links between the probability of using multiple import sourcing and the share of imports from multiple sourcing in total imports on the one hand and two firm characteristics, namely firm productivity and firm size, on the other hand.

The rest of the paper is organized as follows. Section 2 outlines the empirical hypotheses investigated in this paper; section 3 describes the data used in the empirical investigation; section 4 informs on the extent of the use of a multiple sourcing strategy in a large sample of German firms from manufacturing industries and discusses the results of the econometric study on the links between multiple import sourcing and firm characteristics; section 5 concludes.

2.   Empirical hypotheses

We build on the huge literature that discusses the links between firm characteristics and margins of foreign trade and test for the correlation between the adoption of a multiple sourcing strategy in imports and two firm characteristics, namely firm productivity and firm size.

---

include the number of goods imported, the number on countries imported from, and the number of times a firm-god-country combination in imports is recorded in a year; see Wagner (2016) for a comprehensive survey of this literature that includes studies with German data for imports of goods.

[2] It should be noted at the outset that the data used in this empirical investigation do not contain information on the foreign firm a German firm imports from. Therefore, importing the same good from more than one firm in one foreign country (e.g., buying tires from more than one manufacturer of tires from France) is not identified as multiple import sourcing in the data.

Productivity: The positive link between margins of foreign trade and productivity qualifies as a stylized fact. For exports this has been documented in hundreds of studies for countries from all over the world (see Wagner (2007b) for a survey). According to findings from this literature an important reason for the positive productivity differential between exporters and non-exporters is self-selection of more productive firms on export markets. The reason for this is that there exist additional costs of selling goods in foreign countries that can only be covered by more productive firms without making a loss. The range of extra costs include transportation costs, distribution or marketing costs, or production costs in modifying current domestic products for foreign consumption. This implies that firms that export to a larger number of foreign markets and a larger number of different goods have to be more productive, because at least some of the extra costs recur for each foreign market served and for each good exported. Vogel and Wagner (2010) show that similar arguments can be made with regard to imports and productivity. Empirical evidence for Germany reported in Wagner (2012b) is fully in line with this.

The adoption of a multiple sourcing strategy in imports implies that the firm has to cover extra costs, too, because further foreign suppliers have to be searched, new contracts have to be negotiated, all details of the technical specification of the goods have to be fixed and the quality of these goods delivered by a new supplier have to be controlled. At least some of these extra costs are fixed costs. Therefore, this strategy will only be adopted by more productive firms that can cover these extra costs, and the intensity of its use will increase with productivity.

Firm size: A positive link between firm size and margins of foreign trade qualifies as another stylized fact. This positive link is due to fixed costs of exporting and importing. Larger firms have efficiency advantages due to scale economies, advantages of specialization in management and better conditions on the markets for

inputs. Large firms can be expected to have cost advantages on credit markets while small firms often face higher restrictions on the capital market leading to a higher risk of insolvency and illiquidity. Furthermore, there might be disadvantages of small firms in the competition for highly qualified employees. For Germany empirical evidence in line with this positive link between firm size and margins of foreign trade is reported in a number of studies (see Wagner 2011a, 2012a, 2016).

These arguments hold for the adoption of a multiple sourcing strategy in imports and the intensity of its use, too. Therefore, a positive relationship between firm size and multiple import sourcing is expected.

This discussion of the links between firm characteristics and multiple import sourcing leads to the following two empirical hypotheses:

H1: The probability that a firm engages in multiple import sourcing (extensive margin) and the share of imports from multiple sourcing in all imports of a firm (intensive margin) increases with firm productivity.

H2: The probability that a firm engages in multiple import sourcing (extensive margin) and the share of imports from multiple sourcing in all imports of a firm (intensive margin) increases with firm size.

Note that both hypotheses are expected to hold after controlling for detailed industry affiliation at the 4-digit level that take care of industry specific effects like competitive pressure, policy measures, or demand shocks.

3. Data

In Germany information on goods traded across borders and on the countries traded with is available from the statistic on foreign trade (*Außenhandelsstatistik*). This statistic is based on two sources. One source is the reports by German firms on transactions with firms from countries that are members of the European Union (EU);

these reports are used to compile the so-called *Intrahandelsstatistik* on intra-EU trade. The other source is transaction-level data collected by the customs on trade with countries outside the EU (the so-called *Extrahandelsstatistik*). The raw data that is used to build the statistic on foreign trade are transaction level data, i.e. they relate to one transaction of a German firm with a firm located outside Germany at a time.

The record of the transaction usually includes a firm identifier (tax registration number) of the trading German firm. Using this identifier information at the transaction level was aggregated at the level of the trading firm for the reporting years 2009 – 2012. These data show which firm trades how much of which good with firms from which country. Products are distinguished according to very detailed classifications. In the data used for this paper, the Harmonized System at 6-digit level (HS6) is used as the product classification system. These data are used to identify firms that engage in multiple import sourcing, i.e. firms that import at least one HS6-good in a year from more than one country.[3] Furthermore, the data are used to the compute the share of imports from multiple sourcing in total imports of the firm.

The transaction level data on exports and imports does not include any information on the characteristics of the trading firms. However, the firm identifier that comes with this data can be used to merge the information on foreign trade activities at the firm level with information collected on these firms in other surveys. Here we make use of the cost structure survey for enterprises in the manufacturing sector. This survey is carried out annually as a representative random sample survey in about 15,000 firms. The sample is stratified according to the number of employees and the industries; all firms with 500 and more employees are covered by the cost

---

[3] As said the data do not contain information on the foreign firm a German firm imports from. Therefore, importing the same good from more than one firm in one foreign is not identified as multiple import sourcing here.

structure survey (see Fritsch et al. 2004). These data are used to measure the productivity of the firm by value added per employee[4] and the size of the firm by the number of employees.

For each year from 2009 to 2012 information from the transaction data on imports and from the cost structure survey were linked for some 6,000 firms. With these linked data it is possible to investigate empirically the two hypotheses stated in section 2 – that he probability that a firm engages in multiple import sourcing and the share of imports from multiple sourcing in all imports of a firm increases with firm productivity **(H1)** and firm size **(H2)**.

4. Empirical investigation

In the empirical investigation data for the years 2009 to 2012 for samples of enterprises from manufacturing industries are used. The sourcing strategy of firms and the firm characteristics are rather stable over the four year period. Furthermore, in 2012 a new sample has been drawn for the cost structure survey that is the source of information on firm characteristics. Therefore, the data are not used as a panel data set here.[5] Instead, all empirical models are estimated with cross-section data for each year separately.

Descriptive statistics for the samples of importing firms are documented in Table 1. In each year about three in four firms engaged in multiple import sourcing by importing at least one HS6-good from more than one foreign country. The share of imports from multiple sourcing in total imports of these firms was about 50 percent on

---

[4] Note that the data has no information on the capital stock of the firms, so more elaborate measures of productivity like total factor productivity cannot be computed.

[5] See Wagner (2011b, section 5) for a discussion of this issue.

average. Multiple import sourcing is a widely but not universally used strategy among importers from manufacturing industries in Germany.

[Table 1 near here]

To test the two hypotheses H1 and H2 on the links between the import sourcing strategy of a firm and firm characteristics empirical models are estimated that use data for one year from 2009 to 2012 at a time. The dependent variable in the models either measures the adoption of a multiple sourcing strategy in imports by a firm or the intensity with which multiple import sourcing is used by a firm.

Adoption of a multiple sourcing strategy is measured by a dummy variable that takes the value one if a firm uses multiple import sourcing in the respective year (and zero otherwise). The estimation method applied is probit to take care of the dichotomous character of the dependent variable.

The intensity with which multiple import sourcing is used by a firm is measured by the share of imports from multiple import sourcing in total imports of the firm. This is a fractional variable that by definition can only take on values between zero and one (or between zero and 100 percent), and that has a probability mass at zero because some 25 percent of all firms in the sample do not engage in multiple export sourcing. To take care of this fractional character of the dependent variable the empirical models are estimated by fractional logit.[6]

To test the two hypotheses H1 and H2 on the links between the import sourcing strategy of a firm and firm characteristics all empirical models include an

---

[6] The fractional logit estimator was developed by Papke and Wooldridge (1996) and introduced into the literature on the microeconometrics of international trade in Wagner (2001) where details of its use are discussed.

identical set of independent variables: productivity (measured as value added per employee), firm size (measured as the number of employees, and also included in squares to take care of a non-linear relationship) and detailed 4-digit industry controls.

Note that these models cannot reveal any causal relationships, because the data at hand are not rich enough to estimate structural empirical models. Results, therefore, do only indicate correlations between the import sourcing strategy and firm characteristics while controlling for industry affiliation.

Results are reported in Table 2. All results are very similar for the four years. These results are fully in line with the theoretical hypotheses. The probability of using a multiple sourcing strategy in importing and the intensity of its use increases with productivity and firm size.

.

[Table 2 near here]

To put the estimation results into perspective the estimated average marginal effects of productivity and firm size are reported in Table 2, too. Taking the results for 2012 these estimates indicate that an increase in productivity by one standard deviation increases the probability that a firm uses a multiple sourcing strategy by nearly 12 percent and the share of imports from multiple sourcing in total imports by six percent; the respective estimated effects of an increase in employment by one standard deviation are 41 percent and 20 percent. All these estimated effects can be considered to be of a relevant order of magnitude from an economic point of view.

5.   Concluding remarks

This paper looks at the prevalence of multiple sourcing strategies in import activities of German firms from manufacturing industries. Based on information on import transactions by German firms from 2009 to 2012 merged with information on characteristics of the importers taken from surveys by the Statistical Offices it documents that a large share of importers engage in multiple import sourcing by importing the same good from more than one source country in a year and that a large share of total imports is due to multiple sourcing. It is shown that, in line with theoretical hypotheses, the probability of multiple import sourcing and the share of imports from multiple sourcing in total imports increase with firm productivity and firm size after controlling for detailed industry affiliation. These effects are statistically significant and of an order of magnitude that are relevant from an economic point of view.

References

Aykol, Bilge, Dayananda Palihawadana, and Leonidas C. Leonidou (2013): Research on the Import Activities of Firms 1960 – 2010. Review, Assessment, and Future Directions. *Management International Review* 53 (2), 215-250.

Fritsch, Michael, Bernd Görzig, Ottmar Hennchen, and Andreas Stephan (2004): Cost Structure Surveys for Germany. *Schmollers Jahrbuch / Journal of Applied Social Science Studies* 124 (4), 557-566.

Papke, Leslie E. and Jeffrey M. Wooldridge (1996): Econometric Methods for Fractional Response Variables With an Application to 401(k) Plan Participation Rates. *Journal of Applied Econometrics* 11 (4), 619-632.

Quintens, Lieven, Pieter Pauwels, and Paul Matthyssens (2006): Global purchasing: State of the art and research directions. *Journal of Purchasing & Supply Management* 12 (4), 170-181.

Vogel, Alexander and Joachim Wagner (2010): Higher productivity in importing German manufacturing firms: self-selection, learning from importing, or both? *Review of World Economics* 145 (4), 641-665.

Wagner, Joachim (2001): A Note on the Firm Size – Export Relationship. *Small Business Economics* 17 (4), 229-237.

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): Exports and Firm Characteristics in Germany: A Survey of Empirical Studies (1991 to 2011). *Applied Economics Quarterly* 57 (2), 145-160.

Wagner, Joachim (2011b): Exports and Firm Characteristics in German Manufacturing Industries: New Evidence from Representative Panel Data. *Applied Economics Quarterly* 57 (2), 107-143.

Wagner, Joachim (2012a): International trade and firm performance: a survey of empirical studies since 2006. *Review of World Economics* 148 (2), 235-267.

Wagner, Joachim (2012b): Trading many goods with many countries: Exporters and importers from German manufacturing industries. *Jahrbuch für Wirtschaftswissenschaften / Review of Economics* 63 (2), 170-186.

Wagner, Joachim (2016): A survey of empirical studies using transaction level data on exports and imports. *Review of World Economics* 152 (1), 215-225.

World Trade Organization (2016): World Trade Statistical Review 2016. Download: https://www.wto.org/english/res_e/statis_e/wts2016_e/wts16_toc_e.htm.

Table 1: Descriptive statistics

	Year	2009	2010	2011	2012
Number of enterprises		5,963	6,075	6,134	6,238
Share of enterprises with multiple import sourcing (%)		74.79	74.27	75.20	74.83
Share of imports from multiple sourcing in total imports (%)					
	mean	50.83	50.66	50.99	50.38
	std. dev.	39.46	39.82	39.79	39.72
	p1	0.00	0.00	0.00	0.00
	p50	60.41	59.82	60.81	58.98
	p99	100.00	100.00	100.00	100.00
Labor productivity (value added per employee; Euro)					
	mean	57,630	63,417	65,055	64,534
	std. dev.	83,337	79,060	72,177	76,415
	p1	6,759	13,618	15,027	8,947
	p50	47,954	54,131	56,460	55,794
	p99	200,962	212,846	204,356	194,050
Number of employees					
	Mean	152.84	150.76	156.10	154.98
	std. dev.	243.19	220.17	226.77	227.73
	p1	22	23	22	21
	p50	86	85	88	86
	p99	1,050	1,028	1,079	1,063

Note: The minimum and maximum values are confidential; p1, p50 and p99 refer to the 1st, 50th and 99th percentile.

Table 2: Results from empirical models

	Year	2009	2010	2011	2012
Number of enterprises		5,963	6,075	6,134	6,238

Dependent variable: Multiple sourcing (yes/no)
Estimation method: Probit

		2009	2010	2011	2012
Labor productivity	ß	4.73e-6	4.73e-6	4.08e-6	6.09e-6
	p	0.000	0.000	0.002	0.000
Average marginal effect		1.19e-6	1.19e-6	9.91e-7	1.52e-6
(p)		0.000	0.000	0.001	0.000
Number of employees	ß	0.0070	0.0075	0.0079	0.0074
	p	0.000	0.000	0.000	0.000
Number of employees (squared)	ß	-9.25e-7	-1.26e-6	-1.31e-6	-1.20e-6
	p	0.000	0.000	0.000	0.000
Average marginal effect		0.0017	0.0018	0.0019	0.0018
(p)		0.000	0.000	0.000	0.000

Dependent variable: Share of imports from multiple sourcing in total imports
Estimation method: Fractional logit

		2009	2010	2011	2012
Labor productivity	ß	1.45e-6	3.49e-6	3.41e-6	3.69e-6
	p	0.082	0.000	0.001	0.001
Average marginal effect		3.24e-7	7.68e-7	7.47e-7	8.10e-7
(p)		0.081	0.000	0.001	0.001
Number of employees	ß	0.0036	0.0040	0.0039	0.0040
	p	0.000	0.000	0.000	0.000
Number of employees (squared)	ß	-4.90e-7	-7.24e-7	-7.64e-7	-7.45e-7
	p	0.000	0.000	0.317	0.139
Average marginal effect		0.00077	0.00084	0.00082	0.00083
(p)		0.000	0.000	0.000	0.000

Note: ß is the estimated regression coefficient, p is the prob-value. All models include a constant plus dummy-variables for detailed industries at the 4-digit level.

Working Paper Series in Economics

(recent issues)

No.368:   *Joachim Wagner:* Active on many foreign markets A portrait of German multi-market exporters and importers from manufacturing industries, January 2017

No.367:   *Institut für Volkswirtschaftslehre:* Forschungsbericht 2016, Januar 2017

No.366:   *Tim W. Dornis and Thomas Wein:* Trademarks, Comparative Advertising, and Product Imitations: An Untold Story of Law and Economics, September 2016

No.365:   *Joachim Wagner:* Intra-good trade in Germany: A first look at the evidence, August 2016

No.364:   *Markus Groth and Annette Brunsmeier:* A cross-sectoral analysis of climate change risk drivers based on companies' responses to the CDP's climate change information request, June 2016

No.363:   *Arne Neukirch and Thomas Wein:* Collusive Upward Gasoline Price Movements in Medium-Sized German Cities, June 2016

No.362:   *Katja Seidel:* Job Characteristics and their Effect on the Intention to Quit Apprenticeship., May 2016

No.361:   *Katja Seidel:* Apprenticeship: The Intention to Quit and the Role of Secondary Jobs in It., May 2016

No.360:   *Joachim Wagner:* Trade costs shocks and lumpiness of imports: Evidence from the Fukushima disaster, May 2016

No.359:   *Joachim Wagner:* The Lumpiness of German Exports and Imports of Goods, April 2016 [published in: Economics - The Open-Access, Open-Assessment E-Journal 10, 2016-21]

No.358:   *Ahmed Fayez Abdelgouad:* Exporting and Workforce Skills-Intensity in the Egyptian Manufacturing Firms: Empirical Evidence Using World Bank Firm-Level Data for Egypt, April 2016

No.357:   *Antonia Arsova and Deniz Dilan Karaman Örsal:* An intersection test for the cointegrating rank in dependent panel data, March 2016

No.356:   *Institut für Volkswirtschaftslehre:* Forschungsbericht 2015, Januar 2016

No.355:   *Christoph Kleineberg and Thomas Wein:* Relevance and Detection Problems of Margin Squeeze – The Case of German Gasoline Prices, December 2015

No.354:   *Karsten Mau:* US Policy Spillover(?) - China's Accession to the WTO and Rising Exports to the EU, December 2015

No.353:   *Andree Ehlert, Thomas Wein and Peter Zweifel:* Overcoming Resistance Against Managed Care – Insights from a Bargaining Model, December 2015

No.352:   *Arne Neukirch und Thomas Wein:* Marktbeherrschung im Tankstellenmarkt - Fehlender Binnen- und Außenwettbewerb an der Tankstelle? Deskriptive Evidenz für Marktbeherrschung, Dezember 2015

No.351:   *Jana Stoever and John P. Weche:* Environmental regulation and sustainable competitiveness: Evaluating the role of firm-level green investments in the context of the Porter hypothesis, November 2015

No.350: *John P. Weche:* Does green corporate investment really crowd out other business investment?, November 2015

No.349: *Deniz Dilan Karaman Örsal and Antonia Arsova:* Meta-analytic cointegrating rank tests for dependent panels, November 2015

No.348: *Joachim Wagner:* Trade Dynamics and Trade Costs: First Evidence from the Exporter and Importer Dynamics Database for Germany, October 2015

No.347: *Markus Groth, Maria Brück and Teresa Oberascher:* Climate change related risks, opportunities and adaptation actions in European cities – Insights from responses to the CDP cities program, October 2015

No.346: *Joachim Wagner:* 25 Jahre Nutzung vertraulicher Firmenpaneldaten der amtlichen Statistik für wirtschaftswissenschaftliche Forschung: Produkte, Projekte, Probleme, Perspektiven, September 2015 [publiziert in: AStA Wirtschafts- und Sozialstatistisches Archiv 9 (2015), 2, 83-106]

No.345: *Christian Pfeifer:* Unfair Wage Perceptions and Sleep: Evidence from German Survey Data, August 2015

No.344: *Joachim Wagner:* Share of exports to low-income countries, productivity, and innovation: A replication study with firm-level data from six European countries, July 2015 [published in: Economics Bulletin 35 (2015), 4, 2409-2417]

No.343: *Joachim Wagner:* R&D activities and extensive margins of exports in manufacturing enterprises: First evidence for Germany, July 2015

No.342: *Joachim Wagner:* A survey of empirical studies using transaction level data on exports and imports, June 2015 [published in: Review of World Economics 152 (2016), 1, 215-225]

No.341: *Joachim Wagner:* All Along the Data Watch Tower - 15 Years of European Data Watch in Schmollers Jahrbuch, June 2015 [published in: Schmollers Jahrbuch / Journal of Applied Social Science Studies 135 (2015), 3, 401-410]

No.340: *Joachim Wagner:* Kombinierte Firmenpaneldaten – Datenangebot und Analyse-potenziale, Mai 2015

No.339: *Anne Maria Busch:* Drug Prices, Rents, and Votes in the German Health Care Market: An Application of the Peltzman Model, May 2015

No.338: *Anne Maria Busch:* Drug Prices and Pressure Group Activities in the German Health Care Market: An Application of the Becker Model, May 2015

No.337: *Inna Petrunyk and Christian Pfeifer:* Life satisfaction in Germany after reunification: Additional insights on the pattern of convergence, May 2015

No.336: *Joachim Wagner:* Credit constraints and the extensive margins of exports: First evidence for German manufacturing, March 2015 [published in: Economics: The Open-Access, Open-Assessment E-Journal, 9(2015-18): 1-17]

No.335: *Markus Groth und Jörg Cortekar:* Die Relevanz von Klimawandelfolgen für Kritische Infrastrukturen am Beispiel des deutschen Energiesektors, Januar 2015

No.334: *Institut für Volkswirtschaftslehre:* Forschungsbericht 2014, Januar 2015

No.333: *Annette Brunsmeier and Markus Groth:* Hidden climate change related risks for the private sector, January 2015

No.331: *Julia Jauer, Thomas Liebig, John P. Martin and Patrick Puhani:* Migration as an Adjustment Mechanism in the Crisis? A Comparison of Europe and the United States, October 2014

No.330: *T. Addison, McKinley L. Blackburn and Chad D. Cotti:* On the Robustness of Minimum Wage Effects: Geographically-Disparate Trends and Job Growth Equations, September 2014

No.329: *Joachim Möller and Marcus Zierer:* The Impact of the German Autobahn Net on Regional Labor Market Performance: A Study using Historical Instrument Variables, November 2014

No.328: *Ahmed Fayez Abdelgouad, Christian Pfeifer and John P. Weche Gelübcke:* Ownership Structure and Firm Performance in the Egyptian Manufacturing Sector, September 2014

No.327: *Stephan Humpert:* Working time, satisfaction and work life balance: A European perspective. September 2014

No.326: *Arnd Kölling:* Labor Demand and Unequal Payment: Does Wage Inequality matter? Analyzing the Influence of Intra-firm Wage Dispersion on Labor Demand with German Employer-Employee Data, November 2014

No.325: *Horst Raff and Natalia Trofimenko:* World Market Access of Emerging-Market Firms: The Role of Foreign Ownership and Access to External Finance, November 2014

No.324: *Boris Hirsch, Michael Oberfichtner and Claus Schnabel:* The levelling effect of product market competition on gender wage discrimination, September 2014

No.323: *Jürgen Bitzer, Erkan Gören and Sanne Hiller:* International Knowledge Spillovers: The Benefits from Employing Immigrants, November 2014

No.322: *Michael Gold:* Kosten eines Tarifabschlusses: Verschiedene Perspektiven der Bewertung, November 2014

No.321: *Gesine Stephan und Sven Uthmann:* Wann wird negative Reziprozität am Arbeitsplatz akzeptiert? Eine quasi-experimentelle Untersuchung, November 2014

No.320: *Lutz Bellmann, Hans-Dieter Gerner and Christian Hohendanner:* Fixed-term contracts and dismissal protection. Evidence from a policy reform in Germany, November 2014

No.319: *Knut Gerlach, Olaf Hübler und Wolfgang Meyer:* Betriebliche Suche und Besetzung von Arbeitsplätzen für qualifizierte Tätigkeiten in Niedersachsen - Gibt es Defizite an geeigneten Bewerbern?, Oktober 2014

No.318: *Sebastian Fischer, Inna Petrunyk, Christian Pfeifer and Anita Wiemer:* Before-after differences in labor market outcomes for participants in medical rehabilitation in Germany, December 2014

No.317: *Annika Pape und Thomas Wein:* Der deutsche Taximarkt - das letzte (Kollektiv-) Monopol im Sturm der „neuen Zeit", November 2014

No.316: *Nils Braakmann and John Wildman:* Reconsidering the impact of family size on labour supply: The twin-problems of the twin-birth instrument, November 2014

No.315: *Markus Groth and Jörg Cortekar:* Climate change adaptation strategies within the framework of the German "Energiewende" – Is there a need for government interventions and legal obligations?, November 2014

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