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Firms with foreign participation and their influence on export activity in Russia. Firm-level panel evidence.

Abstract.

The paper aims to study the impact of export operations of firms with foreign participation on the export activities of domestic enterprises. Analysis of panel data covers firm-level exports as well as firm export performance on the level of individual commodity. Our research tests for the presence of industrial, regional and commodity-specific spillover effects. The results of the analysis show that spillover effects from foreign affiliate and joint venture exporters on the industry level are negative. On the regional level results are ambiguos. Higher education in a region amplifies any positive effects. Strong support is also found for the existence of positive commodity-specific spillover effects.

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1. Introduction.

Direct effects from incoming foreign direct investment (FDI), in bringing additional capital and technologies, are usually considered as positive for the economy. The impact through indirect effects, called spillover effects, is not so straightforward. On the one hand, other local enterprises can get acquainted with new knowledge, or become suppliers for newly-established firms with foreign participation (JVs, both joint ventures and fully foreign-owned firms). On the other hand, technologically superior JVs are tough competitors.

We approach the problem of determining spillover effects from FDI from the point of view of export activity. Few previous papers have studied spillovers from export activities. There has been only one investigation, to our knowledge, which studied general efficiency spillovers from FDI in Russia – Yudaeva et al(2000)[9]. Our choice of focus is also for reasons of policy importance: improvement of export performance, especially in the manufacturing sector, is a highly desirable goal for Russia.

The aim of the project is to assess empirically whether there are positive or negative spillovers from export activities of JVs to domestic firms' export potential. We use panel firm-level data on exports for 1993, 1994, 1996 and 1997 years and look at how the degree of foreign presence in total exports of industries and regions affects the probability of a local firm to export and the decision of local firm to begin and stop exporting.

It should be noted that firm-level analysis of export activity has a potential problem. Industry classification by enterprise codes may not precisely reflect the nature of export activities of enterprises, namely, the commodities actually exported. Availability of data on commodities exported by firms, although for a shorter period of time (during 1996-1997), makes it possible to address the issue of export performance spillovers from a better specified point of view. We check if the export of a particular commodity by a JV promotes exports of the same commodity by local firms.

2. Review of the Related Literature.

It was widely expected that FDI would become one of the major sources of growth in transition economies. In addition to the transfer of technology and human capital transfer, which should have a positive effect on performance, foreign presence promotes competition, thus forcing domestic firms to restructure. However, particularly in the beginning of transition, foreign entrance can also have a negative effect on domestic firms through increased competition for which they are unprepared. Previous research on the subject found that both types of effects are possible. A survey of the literature on spillovers can be found in Blomstrom and Kokko(1997)[3]. The study of spillover effects on production efficiency has recently become a major topic for empirical research on developing and transitional economies. This recent research typically estimates a type of firm production function, including proxies for the degree of foreign presence in the firm's sector, region, industry. Thus Konings(1999)[5] found negative spillovers, using firm-level panel for Poland, Hungary, Romania and Bulgaria, and Djankov and Hoekman(1999)[4] reported negative spillover effects on Czech firms. Aitken and Harrison(1999)[2] found a similar effect in research using Venezuelan firm-level panel data. This latter paper is notable for its criticism of earlier studies, which used only a cross-sectional approach and thus did not take firm-specific effects into account.

All this empirical literature has focused so far on countries with substantial FDI. On the other hand, Russia, despite abundant natural resources and relatively high-skilled labor force, failed to attract FDI on the large scale. Aggregate FDI to Russia up to 1999 is equal to $17 per capita, compared with $59 in Poland, $220 in Hungary, $27 in Romania and Bulgaria (A.Lopez-Claros(1999)[7]). The only related work on Russia, Yudaeva et al.(2000)[9], suggests positive production spillovers on the industry level from firm level panel data. We hope to find FDI effects to be more concentrated and hence more identifiable when looking on particular activities of foreign investors - export activities of firms in Russia.

There are a number of reasons for justification of an export approach to the assessment of spillover effects. Export-oriented JVs are arguably more likely to bring modern technologies, than JVs oriented to the local market of a less developed country. The former have to meet international standards when they export. Lankes and Venables(1996)[6] found quality of local labor force more significant for export-oriented JVs, and this finding supports the argument that exporting JVs are more technologically advanced, than JVs oriented on the local market. JVs' modern technologies, in turn, can encourage local producers to try to obtain them for their own. This might increase spillovers, if domestic firms are able to accommodate advanced knowledge. Local exporters face tight competition on the world markets and might be more willing to copy technologies and know-how from JVs to increase their own export efficiency.

Export operations of JVs may influence local firms in a number of ways. Direct effects occur when local firms are employed as suppliers and sub-contractors to JVs. The information about exporting thus obtained can then be used in the local supplier companies' other operations. There are also a number of indirect effects that are more or less similar to general efficiency spillovers. Local firms may learn from JVs how to succeed in exporting simply by copying the JV. The latter can lobby for reduction of trade barriers, thus providing a kind of public good to local firms willing to export. A JV can also train its local management in export operations, and these skills can spill over to local firms when JV employees change jobs.

Although literature on JV operations is abundant, there have been few empirical papers related to the subject of spillovers, and even fewer about export activity spillovers. In Aitken, Hanson and Harrison(1995)[1] an empirical model on export decision spillovers was developed and tested for Mexican industrial firms. Using PROBIT estimation for export decision indicators they found that the probability of domestic plant exporting correlates positively with proximity to exporting JVs, and is uncorrelated with local concentration of overall exporters. The hypothesis we test analyses spillover effects on domestic exporters in Russia from JVs' export activities both on the industrial and regional level.

It is difficult to forecast the particular sign of either regional or industrial spillover effects on *a priory* grounds. We can, however, identify the principal economic concepts which might lead to the appearance of either sign. Positive industrial spillovers on export performance can be accounted for by indirect technology transfer, in a successful imitation of a JV activity. By "technology" here we mean not only production technology by itself, but also general knowledge about export operations. Tightening of competition for domestic firms on both input and output markets can cause negative industrial spillover effects. Note that negative spillovers do not necessarily mean decreased/increased productivity of local firms, they might just represent division of the market, that is a JV operating in export markets and local firms serving Russian market. Going to the regional level involves new issues. It might strengthen input competition effects and increase probability of knowledge transfer. Also it allows us to assess specific regional spillovers, generated by the possibility of an access to export-serving infrastructure and export-specific knowledge independent of particular industry. This kind of spillovers can be provided by any exporting JV, located in a region.

3. Model specification and preliminary estimation results.

Data sources.

A 1993-97 panel for the commodity structure, volumes and destinations of foreign firm's and joint ventures' exports (panel1), similar commodity-level 1996-1997 panel of exports (panel2) and simple export volumes for the remaining years (panel3) for domestic industrial enterprises constitutes the main database for our research. Table 3-1 below gives an overview of this data source, where *Firms* is the number of different firms, and *Goods* is the number of different commodity positions (there usually are several commodity positions for each firm).

Table 3-1 Number of firms in the database

	Industrial exporters				All exporters			
	JVs		All		JVs		All	
	Firms	Goods	Firms	Goods	Firms	Goods	Firms	Goods
1997	1700	**7000**	**7400**	**30000**	7000	**15000**	**12700**	**40000**
1996	1200	9500	**8700**	**30000**	4500	13000	**10200**	**40000**
1995	1400	8000	*	*	5300	10000	NA	NA
1994	1400	6000	*3900*	*	4500	8000	NA	NA
1993	1100	5000	*2600*	*	3000	7000	NA	NA

Normal font is for (panel1) data, bold – for (panel2), italic – for (panel3),
** -commodity production is available, but not exports*

We make a great deal of use of two other enterprise-level datasets. The first is the Russian Registry of Foreign Owned Firms (RRFOF). It constitutes a panel for 1992-97 years with about 10000 enterprises with foreign participation in each year. The second is Russian Enterprise Registry Longitudinal Database (RERLD) from Goskomstat. It contains economic performance figures for medium and large sized Russian industrial enterprises. Both of these datasets contain annual firm-level information on output, employment, book value of capital, total costs, exports and some other variables. A detailed description of RRFOF can be found in [9], and of RERLD, for example, in Brown and Brown(1998).[1] Also a database on Russian regions containing various region specific

[1] Brown, A. Brown, D (1998) The Transition of Market Structure in Russia: Economic Lessons and Implications for competition. Working Paper, SITE

figures is available including panels. It will be used in the following empirical specification to control for regional specific factors.

A very important property of our dataset is the possibility of using panel data approach with a considerable time dimension. Recent work on spillovers shows that panel data methods are more appropriate in this case since they can take into account firm-specific effects and the non-instantaneous nature of spillovers.

The sample consists of both exporting and non-exporting firms and covers 4 years (1993,1994,1996,1997) and more than 40000 industrial enterprises located in Russia. The industrial classification is the 5digit OKONH.

Table 3-2. Database representativeness. Exports for 1996.

Major Commodities	% of Total Exports	Database share In Total exports	% Exports to Non-CIS
Mineral fuel, oil and products	46,8%	51,9%	83,9%
Ferrous metals	9,3%	92,3%	95,1%
Aluminum	5,3%	93,7%	98,5%
Precious metals and gems	4,7%	19,7%	97,2%
Nuclear reactors	2,7%	56,7%	53,3%
Non-organic chemicals	2,7%	92,4%	89,8%
Fertilizer	2,4%	85,7%	99,2%
Wood and timber	2,3%	78,6%	90,2%
Copper	2,0%	68,7%	98,2%
Transport vehicles	1,9%	79,5%	74,7%

Total commodity exports are taken from Russian Custom Statistical Bulletin

We think that in the earlier years of the panel, namely 1993-1994, exports of domestic firms may be underrepresented in comparison with JVs' exports, since the database for the latter is more disaggregated and includes exports to former soviet republics (CIS). The database on local enterprises might not include CIS exports, since proper custom offices were only being established then. We have checked whether the proportional decrease in the absolute values of FDI exports affects the robustness of the major results – it does not.

The other potential problem is the fact that export volumes of domestic enterprises in 1993-1994 years are given in rubles, and all other export figures for all years are in dollar terms. Mentioned years were the years of high inflation, with exchange rate in 1993 raising from 400 to

1200, and in 1994 up to 3500 rubles/$. We had no other choice but to recalculate exports in dollars using average year exchange rate.

Firm-level analysis

A PROBIT model was used in [1] with the dependent (LHS) variable the indicator of exporting firm. We then extend it to a panel PROBIT specification. Since a PROBIT specification itself does not allow for estimation of fixed effects, we use conditional fixed effect LOGIT model where the time dimension allows this. It is the sign of the coefficients and their statistical significance that is of interest in this first set of regressions. Later in the paper we use estimations for marginal effects on probabilities and will be able to compare the magnitudes of effects.

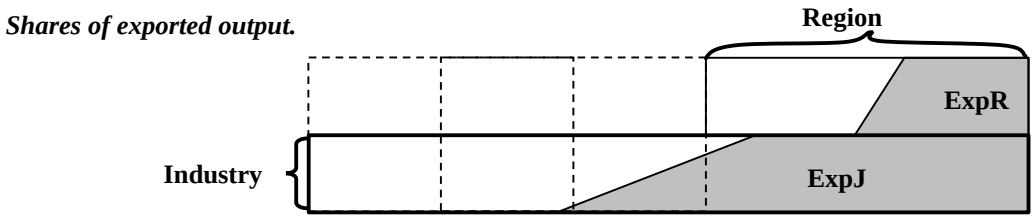
The usage of a fixed effects panel approach is of importance in this study. It allows us to control for initial firm characteristics, regional and industrial differences and possible initial selection bias in exporting firms.

The basic equation is as follows:

$$\mathbf{Pr\{\ firm\ i\ from\ industry\ j\ is\ exporting\ in\ year\ t\}}_{ijt} =$$

$$\mathbf{F(\ ExpJf}_{jrt}\mathbf{,\ ExpRf}_{jrt}\mathbf{,\ ExpJRf}_{jrt}\mathbf{,\ ExpJ}_{jrt}\mathbf{,\ ExpR}_{jrt}\mathbf{,\ other\ )}$$

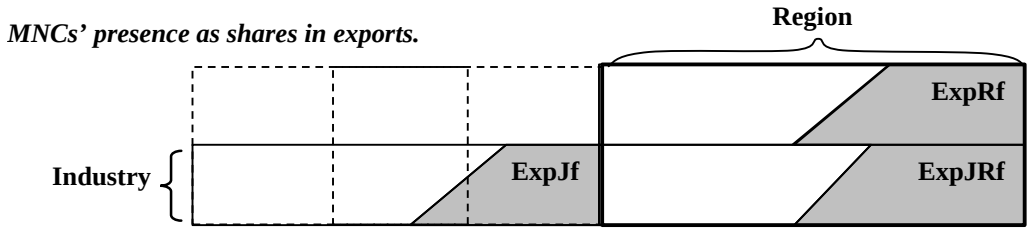
For each particular firm the LHS variable is equal to 1 if firm **i** from industry **j** is exporting in year **t** and 0 otherwise. Only local firms are included in the analysis, since spillover effects between JVs are of different nature in some aspects and out of the scope of our research. $\mathbf{ExpJ}_{jrt}$ is a characteristic reflecting firm's own industry export orientation and is calculated as a share of industry output exported abroad. $\mathbf{ExpR}_{jrt}$ is a share of industrial output of a region that was



exported, not including that already summed into the previous variable, that is without firm's

industry. It serves as a proxy for export orientation of all other industries in the region, except the firm's own industry. In all the variables we do not include the firm itself in the calculation.

The set of foreigners-related variables is of key interest in the estimation. Each of them represents a share of exports carried out by joint ventures and fully foreign-owned enterprises in the overall exports of some class of firms, and therefore proxies the degree of foreign presence in the respective class. For each local firm, $\mathbf{ExpJf_{jrt}}$ is the share of JVs' exports in the firm's own industry located outside firm's own region. $\mathbf{ExpJRf_{jrt}}$ corresponds to the firm's industry within the same region. Both of these concepts reflect firstly, the possibility of specific knowledge spillovers and, secondly, competition in both output and input markets (i.e $\mathbf{ExpJf_{jrt}}$ is more likely to reflect output market competition while $\mathbf{ExpJRf_{jrt}}$ may reflect competition for specific regional inputs, e.g. skilled labor force). We differentiate between them since geographical proximity might make both of these effects more distinct. An even more important issue with the latter variable is the possibility of isolating artificial negative effect of joint ventures. A considerable share of joint ventures is not newly established, but includes former domestic firms or their parts. In Russia, when a foreign investor comes to an existing enterprise, he usually reregisters a new joint venture and hence gets a new ID code. And the situation may be as follows – a domestic firm stops exporting and a newly created JV starts instead, thus leading to a statistically negative impact of FDI on domestic firms. The origin of the data is such that it is close to impossible to retrace such a takeover and identify the link between former domestic enterprise and created joint venture. The fact that new joint venture usually stays in the same industry and certainly remains in the same region where host firm was located, isolates this artificial effect in the $\mathbf{ExpJRf_{jrt}}$ variable.



There is evidence that domestic would-be exporters can enjoy spillovers not only from JVs in the same industry, but also from geographically close foreign establishments from other industries. Spillovers in this case are obviously less specific and might include general export management skills and knowledge of business culture. Low labor force mobility across regions in Russia provides additional support for this argument. To check for this factor, an $\mathbf{ExpRf_{jrt}}$ variable is included, calculated as export share of JVs in the region industrial export, excluding native industry of the firm. Tested hypothesis of positive spillover effects from JVs to domestic firms would suggest that the likelihood of a local firm to export correlates positively with the $\mathbf{ExpJf_{jrt}}$ **,** $\mathbf{ExpRf_{jrt}}$ proxies of foreign presence.

Other variables may include regional, industrial, export tariff and other factors that come out significant in Manaenkov(2000)[8] ongoing research on FDI determinants in Russia that uses the RRFOF database and is running in close connection with this project. We are primarily in looking on the crossterms of the other variables with the proxies for foreign presence in exports, since it can give us a suggestion of how the magnitude of spillover effects depends on these variables.

Firstly, it is of interest to differentiate industries. Manufacturing/nonmanufacturing classification on the 5digit OKONH level was done by A.Brown and D.Brown[2] using data on commodities produced by Russian firms, and the US SIC classification of commodities. It was also interesting for us to check if the raw materials exporters in Russia face different spillover effects, especially competition-related ones, than exporters of final goods. Indeed, world raw materials markets are broader than those for final goods. And the quality of raw material output depends less

[2]Brown, Annette N.,and J.David Brown, "Does Market Structure Matter? New Evidence using Exogenous Market Structure." SITE Working Paper No. 130, February 2001

on the level of technology used, than the quality of final good. Therefore, assuming that JVs bring modern technologies to their affiliates here, we may expect stronger negative competition effects from JVs exporting final goods to the local firms in the same industry wanting to export. Division of industries into processing industries and raw materials industries was done on the 4digit OKONH level.

Secondly, we include a measure of labor force quality – the share of people with secondary education in the region. The spillover effect of education is found to be positive in [5] and [9], and education itself is one of the main FDI attracting effects in [8]. We expect positive effect of education on the ability of local firms to acquire some positive spillovers from JVs.

Table 3-3. Panel fixed effect conditional LOGIT with year dummies.

Indicator of exporting firm as a LHS variable.

ExpJf	-0.548 [4.80]**	-2.388 [4.91]**	-0.542 [4.74]**	-0.54 [4.72]**
ExpRf	-0.592 [2.49]*	-0.589 [2.47]*	1.004 [1.71]	-0.596 [2.51]*
ExpJRf	-1.188 [8.66]**	-1.194 [8.71]**	-1.186 [8.65]**	-0.388 [0.76]
Crossterms		**(Manufacturing Industry Dummy)**		
ExpJf * ( )		1.989 [3.97]**		
ExpRf * ( )			**-1.867** **[2.94]****	
ExpJRf * ( )				-0.859 [1.62]
ExpJ, ExpR, year dummies included				
Obs.	25710	25710	25710	25710
Firms	6848	6848	6848	6848
Absolute value of z statistics in brackets, * significant at 5%; ** significant at 1%				

In Table 3-3 we report results of fixed effect LOGIT estimations for the whole 1993-94,96-97 panel and for some crossterms. Note that due to fixed effect specification all firms that didn't change their export behavior in the time span of the panel, are dropped out of the regression sample. Indeed, all zeros or all ones in the export indicator are perfectly described by the fixed effect constant, and hence such observations are of no use in estimating the effect of other variables. This table reports only interesting crossterms. Complete regressions can be found in the Appendices.

Both variables reflecting general export orientation of industry and region have expected significant positive signs. Foreign presence in intersection of industry and region **ExpJRf** has strongly significant negative sign, and we cannot say whether it is due to tougher intra-region competition or artificial effect of data. Sign of spillover effect from foreign presence in the industry exports, i.e. coefficient near **ExpJf,** is significantly negative. We also included regressions with crossterms for industry with lower-stages-of-processing/higher-stages-of processing, but there was no significant results.

It is difficult to say exactly where industries become so much different that enterprises do not compete with one another. Hence the effect of JV presence that is measured by **ExpJf** can take place not only from the industry where a local firm is located, but also from similar industries. Similarities can include inputs, like materials and worker skills used, intermediate products, etc. Industrial code used in Russia, OKONH, already contains hierarchical structure of industries, so we use it for different levels of aggregation. We look on the panel fixed-effect LOGIT regressions for 5digit, 4digit and 3digit OKONH aggregates (see Appendices). The sign of spillover effects from the foreign presence in all the classes are significantly negative for all industry classifications, but foreign presence in the region is only 5% significant.

It is the behavior of crossterms that sometimes changes greatly depending on level of aggregation. Crossterm of manufacturing industry indicator with foreign presence in industry changes sign when going to broader classification of industries.

The other way to estimate FDI establishments' influence is to look on the entry/exit of domestic firms on the export market. Basically there are 4 possible behaviors for firms when one period of time passes: not exporting, starting, stopping and continuing exporting. But only two choices are available to a particular firm at each moment of time – to change or not to change its export behavior. Hence we divide the sample into two subsamples. The first consists of *not-exporting vs. starting-exporting* behaviors, that is, entry on the international market. Variable

DEntry is the indicator of entering exporting activities. It is equal to 0 if a firm did not export in both years and 1 if it did not export in the current year and exported in the next year. The second behavior is *continuing-exporting vs. stopping-exporting*, that is, exiting international market. Variable **DExit** is the indicator of continuing exporting activities. It is equal to 0 if a firm exported in the current year and stopped in the next year, and 1 if it exported in both years. With this choice of indicators all positive effects in the regressions are now "positive" in the sense of export encouraging – it is just for the convenience of table comparisons.

P{ DEntry =1 } = F(ExpJ, dExpJ, ExpR, dExpR, ExpJf, ExpRf, ExpJRf, others)

P{ DExit =1 } = F(ExpJ, dExpJ, ExpR, dExpR, ExpJf, ExpRf, ExpJRf, others)

We also include a change of export characteristics of industry **dExpJ**(t)=**ExpJ**(t+1)-**ExpJ**(t), and similar **dExpR** for region. These variables can help capture the effect of short-term changes that in turn caused an "export rush" or the opposite. In case of industry it can encompass fluctuations of world prices or export tariffs on industry output. In case of region it can be a new legislation issued, or a local custom terminal opened, that can make exporting easier (or harder). It should be noted that, whatever the factor is, its effect is not measured directly but through the changed percentage of exports in the output, that is, the aggregate decisions of other firms to change their export behavior. Also, the reaction of all the firms on this change assumed to be within the same year.

Table 3-4. Export entrance/exit analysis.

Marginal effects for LOGIT regressions.

	Export Entrance LOGIT			Export Continue LOGIT		
	1996-97	1994-96	1993-94	1996-97	1994-96	1993-94
ExpJ	0.144	0.691	0.273	0.86	0.372	0.473
	[9.9]**	[21]**	[12]**	[13]**	[5.6]**	[4.4]**
DExpJ	0.018	0.757	0.194	0.459	0.772	0.393
	[0.48]	[15]**	[5.4]**	[2.3]**	[7.5]**	[2.7]**
ExpR	0.029	0.052	0.054	0.097	-0.115	0.179
	[1.64]	[1.45]	[1.80]	[1.40]	[1.40]	[1.11]
DExpR	-0.054	0.075	-0.093	-0.178	0.474	0.588
	[1.91]	[1.75]	[2.70]**	[1.45]	[4.14]**	[3.01]**
ExpJf	-0.006	-0.155	-0.101	-0.035	-0.053	-0.165
	[0.70]	[13]**	[12]**	[1.10]	[1.44]	[3.14]**
ExpRf	0.038	0.029	0.025	0.077	-0.1	-0.29
	[3.08]**	[1.13]	[2.49]*	[1.66]	[1.49]	[3.63]**
ExpJRf	0.011	0.021	0.009	-0.003	-0.057	-0.17
	[1.19]	[1.47]	[0.96]	[0.08]	[1.20]	[1.91]
Constant	-0.143	-0.235	-0.173	0.107	0.186	0.151
Obs.	17133	18032	22981	6247	3542	2481

Z-statistics are in brackets, * denotes 5% significance, ** denotes 1% significance

In Table 3-4 are the results of LOGIT analysis of entry/exit decisions of firms. ExpJf remains persistently negatively significant, as in case of panel fixed-effect LOGITs for export indicator. This suggests general negative effect of foreign presence in the industry on the decision of a local firm to both begin exporting and continuing it. We interpret this result as the fact that negative effects from competition with JVs are greater than any positive knowledge transfer effects. There is some positive significance of regional foreign presence in exports in case of firm's starting exports. This result is robust for 3 and 4digit classifications of industries too. It suggests that exporting JVs create knowledge or infrastructure, that helps domestic firms in the same region enter export market themselves.

Note, that negative significance of ExpJf almost disappears when looking on the last period of time in the panel. Table 6-3 in the Appendices looks closely at the time path of spillover effects, replacing each variable of interest in turn with its crossterms with year dummies. By doing this, we can estimate coefficients separately in each year and get the feeling of how estimated effects vary with time. Coefficients near ExpJf crossterms gradually increase over time from strongly negatively significant in 1993 to insignificant in 1997, implying decrease of negative effects in industry. Coefficients near ExpRf go the other way around, from positively insignificant in the beginning of the panel to negative and significant in the end. Note, that, contrary to the industry effects, this pattern of regional spillovers is not duplicated in LOGIT regressions that analyze changes in export behavior. Hence we should be cautious about the immediate interpretation of results concerning intraregional effects of foreign presence.

Now let us look closer on the secondary education influence.

Table 3-5. Secondary Education Deviation Effects.

Marginal effects for LOGIT regressions.

	Export Entrance LOGIT			Export Continue LOGIT		
	1996-97	1994-96	1993-94	1996-97	1994-96	1993-94
ExpJf	-0.005	-0.154	-0.098	-0.035	-0.055	-0.165
	[0.64]	[13]**	[12]**	[1.09]	[1.51]	[3.14]**
ExpRf	0.024	-0.031	-0.058	-0.029	-0.106	-0.317
	[1.68]	[1.02]	[2.61]**	[0.60]	[1.47]	[3.6]**
ExpJRf	0.004	0.012	0.0	-0.058	-0.076	-0.177
	[0.45]	[0.81]	[0.05]	[1.43]	[1.55]	[1.98]*
ExpRf * SED	**0.19**	**0.54**	**0.766**	**1.618**	**2.67**	**0.916**
	[1.26]	**[1.86]**	**[3.19]****	**[2.94]****	**[3.18]****	**[0.71]**
SED	0.061	0.117	0.088	0.186	-0.477	-0.049
	[1.48]	[1.64]	[2.27]*	[1.28]	[2.35]*	[0.21]
Constant	-0.142	-0.231	-0.169	0.105	0.176	0.149
Firms	17110	18013	22953	6245	3542	2481

Z-statistics are in brackets, * denotes 5% significance, ** denotes 1% significance

As it can be seen, crossterms of education with regional foreign presence are positive for all years and strongly significant for half of them. Significance remains valid through different industry aggregations, and there is also some marginal positive significance of education crossterms in panel fixed effect regressions (see Appendices).

Labor mobility issue might best explain this fact. When employees leave JV to work for some domestic firm, they can bring knowledge about export operations with them. And the more educated they are, the more likely they will be able to make such a transfer.

We have also checked industry foreign presence measures, but secondary education effect is insignificant there.

We will end firm-level analysis with Table 3-6, looking on the effect of changes in foreign presence. It reflects the quick component of spillover effects on the decisions of firms, since this change and the change in export behavior occur in the same period of time between two successive statistical reports of the firm.

Table 3-6. Changes in foreign presence.

Marginal effects for LOGIT regressions

	Export Entrance LOGIT			Export Continue LOGIT		
	1996-97	1994-96	1993-94	1996-97	1994-96	1993-94
ExpJf	-0.006	-0.154	-0.1	-0.03	-0.043	-0.168
	[0.69]	[12]**	[12]**	[0.94]	[1.17]	[3.19]**
ExpRf	0.04	0.084	0.053	0.084	-0.08	-0.25
	[3.21]**	[3.01]**	[3.14]**	[1.80]	[1.18]	[3.09]**
ExpJRf	0.011	0.015	0.008	-0.036	-0.146	-0.242
	[1.24]	[1.04]	[0.84]	[0.87]	[2.70]**	[2.64]**
dExpRf	**0.02**	**0.159**	**0.053**			
	[1.04]	**[5.09]****	**[3.56]****			
dExpJRf				**-0.156**	**-0.16**	**-0.202**
				[3.15]**	**[3.39]****	**[3.43]****
ExpJ, dExpJ, ExpR, dExpR included						
Obs.	17133	18032	22981	6247	3542	2481

Z-statistics are in brackets, * denotes 5% significance, ** denotes 1% significance

Two of the coefficients reflecting changes in foreign presence were robustly significant across years and different industry classifications. Firstly, increase of foreign share in the region's exports in turn increases the probability for the local firms to entry export market. It gives additional support for stating positive regional spillover effects for entering exports. Secondly, increase in foreign share of exports in the industry inside region adversely affects probability of continuing exports. This can reflect either quick (within a year) result of competition between JV and local firms in the same industry and region or, more likely, that mentioned above "artificial effect" in the nature of the data.

Summarizing firm-level analysis, it was found that that local firms face significant negative spillovers in export activities from JVs, located in the same industry. This finding can be explained by strong negative competition effects inside industry. There are signs, however, that this negative effects decrease over time. We have not obtained any persistently significant results that could demonstrate difference between spillover effects in manufacturing and non-manufacturing industries, or in industries with lower stages of processing of raw material inputs and those with higher stages of processing.

Overall effect of foreign presence in a regional exports is ambiguous. Still, regional spillovers tend to positively affect the decision of local firms to begin exports. It suggests that

exporting JVs in the region create knowledge or infrastructure, independent of industry, that helps domestic firms enter export market themselves. The fact that higher average education in the region increases positive effects from regional spillovers brings additional support for the finding, since more educated workers are more likely to transfer knowledge from JVs to local firms either when they change jobs, or by imitation.

Commodity-level analysis

In the firm-level part we were not able to determine whether there are any positive effects from JVs on the industry level, if not take into account strong negative competition effect. But the firm-level analysis, deals with aggregate export performance, while good-level approach allows us to differentiate between exports to CIS and other foreign countries.

Together with testing for the overall effects on the volume of exports we look if the particular type of commodity exported by JV can encourage domestic enterprises in starting exporting similar commodities on their own. We use 4-digit aggregation of TNVD good codes to represent different groups of commodities. Possible spillover effects in this case can include technology transfer (through imitation technique) as well as knowledge of the specific international market on this commodity with its net of buyers, business relations, traditions etc. On the other hand, commodity analysis should capture product market competition better than firm-level approach. Similar to firm-level analysis, we perform separate analysis of foreign market entry and exit. The hypothesis concerning good specific knowledge and competition are tested within two types of model specification: simple entry or exit LOGITs:

$$\mathbf{Pr\{}\ \text{firm } \mathbf{i} \text{ from industry } \mathbf{j} \text{ and region } \mathbf{r}\ \textbf{\textit{starts}}\ \text{exporting good } \mathbf{k} \text{ in year } \mathbf{97\}}_{ijrk} =$$

$$= \mathbf{F(TNExpJ_k\ ,\ dTNExpJ_k\ ,\ TNExpR_k\ ,\ dTNExpR_k\ ,\ ExpRf_{jk}\ ,\ dExpRf_{jk}\ ,}$$

$$\mathbf{ExpJf_{rk}\ ,\ dExpJf_{rk}\ ,\ ExpJRf_{jr},\ \ dExpJRf_{jr},\ \ ExpR_{r},,\ ExpJ_{r},\ Dex43,\ other\ )}$$

Pr{ firm **i** from industry **j** and region **r *quits*** exporting good **k** in year **97}** $_{ijrk}$ **=**

= F(TNExpJ$_k$, dTNExpJ$_k$, TNExpR$_k$, dTNExpR$_k$, ExpRf $_{jk}$, dExpRf $_{jk}$, ExpJf $_{rk}$, dExpJf $_{rk}$, ExpJRf $_{jr}$, dExpJRf $_{jr}$, ExpR $_r$, ExpJ $_r$, Dex43, other).

Also the data allows us to take a closer look at decisions to start, quit or continue exports. We just develop previous specification, expanding a choice set.

Now a beginning of export of a good **k** involves a choice among three alternatives: not to export (we label this outcome as "0"), begin exports of good **k** to a non-CIS country ("1" outcome), begin exports to both non-CIS and CIS countries("2" outcome) and begin exports of good **k** only to CIS countries ("3" outcome). We implement multinomial LOGIT to estimate this model,

Pr {firm i from industry **j** and region **r** chooses an outcome in [0,1,2,3] with respect to beginning exporting good **k** in year **97}** $_{ijrk}$ **=**

= F (all the same variables).

and perform statistic tests whether specific variables equally influence probabilities of both nontrivial outcomes.

In a similar way we could investigate an exit from exports. We focus on firms' decision to quit non-CIS exports, since foreign export competitiveness is the major issue in this paper. Again we use multinomial LOGIT. We label choices as follows: "0" for continuing exports only to non-CIS countries; "1"- switching to mixed or only CIS exports (CIS and non-CIS, with decline in total value of good **k** exports relative to Russian export of this good); "2" – quit all exports and "3" – close the entire firm.

Pr {firm i from industry **j** and region **r** chooses an outcome in [0,1,2,3] with respect to exit from exporting of good **k** in year **97}** $_{ijrk}$ **=**

= F (all the same variables).

Where all left-hand side variables with the same names as in the firm-level analysis, representing foreign share in exports, have slightly different meaning. In this section we introduce good specific variables $\mathbf{TNExpR_{rk}}$ and $\mathbf{TNExpJ_k}$ reflecting foreign share in exports of a good **k** inside the region **r** and outside this region respectively. And the rest of the variables represent *non-CIS*[3] *export of JVs* as a share of total export in region, industry or in region-industry *excluding good **k***. Also analysis includes a set of control variables, specific to good-level approach: **mi -** change in yearly export tariffs for good **k** in 1996-97, **dpr** - index of change in world prices for good **k**.

It is useful to further distinguish between raw material commodities and those being subject to processing. Russian economy is often blamed for its orientation on raw exports, hence it is of interest to see if spillovers from processed-goods-exporting JVs promote this kind of exports for domestic firms. For this purpose dummy variable is included to represent a nature of a good: whether it is a raw or already processed commodity. Also we look at the differences in spillover effects in raw and processed commodities.

Now let us proceed to results and their interpretation. First let us look at results of export market entrance analysis. The coefficients give marginal effects on predicted probability. Here we drop mixed choice in MLOGIT and do not present all variables. Complete tables are given in Appendices.

The results from Table 3-7 present the major results of good-level analysis. Firstly, we perform simple entrance logit regression, ignoring the destination of new exports, to establish a link to firm-level analysis. Thus first two columns contain results similar to firm-level entrance logit in 96-97. After we control explicitly for export price[4] and tariff changes, we have results, which are similar to firm-level part: insignificant industrial spillovers and positive regional impact (give that

[3] We also tried to incorporate similar measures for JVs' exports to CIS, but they were insignificant for both starting CIS and non-CIS exports.

similar goods not necessarily produced within the same industry, expressed by 5-digit OKONH code).

But if we look at the results of multinomial estimation (second column), we can see that the aggregate results from the simple entrance logit no longer hold, when entrance to CIS and non-CIS export are treated as alternatives choices. More specifically: we observe positive impact from foreign share in commodity export outside a region of location of a domestic firm, when it enters non-CIS exports, and negative impact for CIS export entrants. And similar effect for regional foreign presence in commodity exports: the share of non-CIS JVs export of commodity **k** in total regional export of this commodity positively influences the decision of local firm to start non-CIS exports, and does not affect the decision of the same firm to export to CIS country. Concerning less specific spillovers, foreign presence (in the sense of exports to non-CIS) in exports of region **r** excluding industry **j** positively affects probability of non-CIS entrance and negatively influences CIS entrance.

Thus, given that TNExpJ and TNExpR represent spillovers of the same nature, and impact of TNExpR is robustly more positive, we can claim that geographic proximity to exporting JV is an important factor for realization of a good-specific spillovers, which are present and positive for non-CIS exports. The fact that good specific spillovers (measured by TNExpR and TNExpJ) from non-CIS exports by JVs on domestic exporters entering CIS market is either insignificant or even negative probably indicates that good-specific spillovers occurring in Russia are likely to be a destination market knowledge than technology transfer.[5]

[4] Since we have price changes only for major goods, which is only 1/3 of our sample, we present results both for full and 1/3 sample, using the latter as a kind of robustness check (since these good account for 80% volume of exports).
[5] Though this is only a guess, which deserves particular attention in further research.

Table 3-7 Commodity Exports. Marginal effects reported.

	Simple entrance logit		Multinomial entrance logit			
	pooled	pooled	Non-Cis	CIS	Non-Cis	CIS
TNExpJ	**-0.0019**	**0.0001**	**0.0013**	**-0.0030**	**0.0012**	**-0.0028**
	[2.17]*	[0.13]	[3.87]**	[3.41]**	[3.46]**	[2.86]**
TNExpR	**0.0054**	**0.0047**	**0.0020**	**0.0013**	**0.0016**	**0.0008**
	[5.24]**	[4.52]**	[5.17]**	[1.42]	[3.93]**	[0.84]
ExpJf	0.0031	0.0008	0.0008	-0.0007	0.0006	-0.0008
	[1.98]*	[0.38]	[0.95]	[0.44]	[0.72]	[0.50]
ExpRf	-0.0014	0.0005	**0.0023**	**-0.0043**	**0.0021**	**-0.0043**
	[0.85]	[0.32]	[4.98]**	[2.34]*	[4.83]**	[2.35]*
ExpRJf	0.0002	-0.0015	-0.0003	-0.0010	-0.0003	-0.0011
	[0.09]	[0.74]	[0.48]	[0.55]	[0.52]	[0.59]
Di		-0.0141	-0.0033	-0.0118	-0.0033	-0.0116
		[4.18]**	[1.68]+	[4.63]**	[1.88]+	[4.54]**
Dpr		0.0015	0.0003	0.0019	0.0002	0.0018
		[2.08]*	[0.75]	[3.57]**	[0.56]	[3.33]**
Processed commodity dummy cross term with:						
TNExpJ					-0.0009	-0.0017
					[0.83]	[0.76]
TNExpR					0.0010	0.0017
					[1.32]	[0.80]

Opposite signs of ExpRf for CIS and non-CIS export market entrance could be explained by argument similar to firm-level part: JVs establish new (or using old) non-CIS export-oriented infrastructure.

Another result concerns the magnitude of spillover effect for raw and processed commodities. Although in some specifications cross terms of processed commodity dummy with good-specific variables turns out to be significant, in general we have not found any robust result. In other words, there is no statistical difference in the magnitude of good-specific spillovers for raw and processed commodities.

Table 3-8. Attempt to separate Spillovers and Competition.

Marginal effect reported.

Multinomial Entrance logit			Multinomial Entrance logit	
Variables:	Non-Cis	CIS	Non-Cis	CIS
Dpr			0.0003	0.0018
			[0.91]	[3.75]**
Lagged independent variables (as of 1996)				
TNExpJ[-1]	0.0015	-0.0042	0.0027	-0.0024
	[3.42]**	[4.01]**	[4.50]**	[1.98]*
TNExpR[-1]	0.0037	0.0002	0.0027	0.0015
	[6.81]**	[0.18]	[4.72]**	[1.07]
ExpJf[-1]	0.0020	0.0018	0.0007	-0.0005
	[2.97]**	[1.83]+	[0.75]	[0.29]
ExpRf[-1]	0.0019	-0.0046	0.0019	-0.0038
	[3.61]**	[3.64]**	[4.15]**	[2.14]*
ExpRJf[-1]	-0.0008	0.0006	-0.0005	-0.0008
	[1.05]	[0.51]	[0.67]	[0.46]
First difference of independent variables (value in 1997- value in 1996)				
dTNExpJ	0.0005	-0.0029	0.0011	-0.0032
	[1.68]+	[3.81]**	[3.41]**	[3.82]**
dTNExpR	0.0026	0.0009	0.0018	0.0010
	[7.22]**	[1.01]	[4.67]**	[1.07]
dExpJf	-0.0002	0.0006	-0.0004	-0.0074
	[0.22]	[0.22]	[0.53]	[2.91]**
dExpRf	0.0057	-0.0146	0.0043	-0.0124
	[4.33]**	[2.77]**	[3.55]**	[2.54]*
dExpRJf	-0.0003	-0.0049	-0.0005	-0.0036
	[0.34]	[3.02]**	[0.59]	[1.37]
Observations	170950	170950	47643	47643
Absolute value of z statistics in brackets + significant at 10%; * significant at 5%; ** significant at 1%				

Important aspect in understanding the spillover effects is the timing issue. Firstly, every measure of foreign presence in exports captures two effects: spillover and competition. It is natural to think that competition increases at that time, when JV starts exporting, on the other hand it takes time for spillovers to realize. Thus we attempt to separate competition and spillover effects through inclusion of lagged independent variables and their increments into regressions, that is instead of TNExpJ we use TNExpJ[-1] and dTNExpJ=TNExpJ-TNExpJ[-1]. The results concerning separation of spillovers and competition are presented in Table 3-8.

Briefly summarizing results, we see that lagged value and increments of independent variables have the same sign of the impact for both CIS and for non-CIS export entrants. Thus, for

the case of non-CIS exports, spillovers effects show up rather quickly (within a year). This provides an additional support for good-specific spillovers being rather market-knowledge than technology transfer.

Another approach, which might reveal important features of spillovers and competition, is the analysis of export exit. We focus on firms exiting non-CIS exports. We expect cases of quitting export of a particular good to be caused primarily by competition effect, since entrance of foreign competitor immediately introduces a negative externality in terms of output and input market competition, whereas spillover effects take time to realize. If it is so, than firms exiting exports are those unable to absorb spillover effects. In such a case one should expect positive relation between the probability of exit and degree of foreign presence in exports of commodity.

Table 3-9 gives an insight on what affects ending of non-CIS exports. Let us first comment on relation of results in this table relative to continue exports result in firm-level analysis: since here we use to categories implying export market exit (export exit and firm foreclosure) we (contrary to firm-level) treat positive sign of a coefficient as increasing the probability of exit, thus for comparison of results, one must revert signs from, for example Table 3-6. Secondly, firm-level analysis studied both cases of quits from CIS and from non-CIS markets simultaneously, while here we only focus on non-CIS quits. Here we also attempt to control for "artificial effect" directly: we introduce a new variable: **en,** which is a total number of newly established (in 97[6]) exporting JVs in a region and 5-digit OKONH industry code.

[6] We also tried the same measure of new JVs, established in 96, but it performed badly. We did not use this measure in firm-level analysis, since it is less reliable for 93-94.

Table 3-9 Non-CIS export exits.

Multinomial logit marginal effect reported.

	Reression1		Reression2		Reression2, major goods	
Variables:	quit Export	Close	quit Export	Close	quit Export	Close
TNExpJ	**-0.2389**	**-0.0718**	**-0.2986**	**-0.0651**	**-0.2481**	**-0.1212**
	[3.72]**	[2.59]**	[3.04]**	[1.94]+	[1.71]+	[2.70]**
TNExpR	-0.0193	-0.0172	-0.1098	-0.0717	0.0012	-0.0538
	[0.38]	[1.18]	[1.44]	[1.80]+	[0.01]	[1.64]
ExpJf	-0.1542	0.0532	-0.1359	0.0523	-0.2542	-0.0004
	[1.47]	[1.34]	[1.30]	[1.36]	[1.22]	[0.02]
ExpRf	0.0991	-0.1263	0.0913	-0.1229	0.1446	-0.0126
	[0.88]	[1.32]	[0.82]	[1.30]	[1.18]	[0.47]
ExpRJf	-0.0124	0.0952	-0.0323	0.0923	0.0696	0.0095
	[0.1212]	[2.84]**	[0.32]	[2.70]**	[0.53]	[0.46]
En	**0.0884**	0.0032	**0.1185**	0.0057	**0.1277**	-0.0260
	[1.77]+	[0.14]	[2.11]*	[0.23]	[2.04]*	[1.27]
Dpr					-0.0358	0.0245
					[0.54]	[1.73]+
Cross term of processed good dummy with:						
TNExpJ			0.2350	0.0060	0.9085	-0.3145
			[1.75]+	[0.12]	[1.26]	[1.92]+
TNExpR			0.1967	**0.0719**	-0.1207	**0.0966**
			[1.95]+	[1.69]+	[0.54]	[2.26]*
Observations	2963	2963	2963	2963	772	772

Absolute value of z statistics in brackets
+ significant at 10%; * significant at 5%; ** significant at 1%

All three regressions give negative significant or insignificant coefficient estimates for all foreign presence measures. Thus, we cannot make any assessment of influence of competition on foreign market exits. The only thing we can infer from this table (negative significance of TNExpJ, insignificance of TNExpR, positive, though not robust to major goods sub sample, significance of ExpRJf and positive significance of processed dummy cross term with TNExpR) is that input market competition (captured by TNExpR, ExpRJf) is at least in part responsible for non-CIS export market quits. We have also run regression with lagged independent variables and their increments similar to entry analysis. It did not yield any new results, thus we present it only in Appendix.

Concerning our measure of “artificial effect”, we see that it is significantly positive for exit from exports and insignificant for firm foreclosure, thus the “artificial effect” is present in the data,

and affects exit analysis. As it was mentioned, it is close to impossible to study each individual exporting JV whether it is a “Greenfield” firm or it is a part of domestic firm, which exported previously.

Thus good-level analysis offers support for presence of commodity-specific spillovers, and assesses its importance in decision of entering CIS and non-CIS export markets by domestic firms. We find opposite effects with respect to entrance to CIS and non-CIS markets: For non-CIS export positive good-level spillover effects generally outweigh negative commodity-specific effects, that is, product and good-specific input market competition, while for CIS exports the overall effect is negative. We did not find any evidence for the difference in spillover effects for raw and processed commodities. Studies of exit from exports yield no informative results with respect to commodity-specific variables. It should also be noted that good-level analysis, performed in the same way as firm level, produces very similar results, and further analysis taking advantage of commodity-level data gives a deeper insight into the nature of spillover effects.

In the appendix, complete results with all control variables are presented.

4. Conclusions.

The paper aims to study the impact of export operations of JVs on export activities of domestic enterprises. Panel data analysis covers firm-level exports as well as firm export performance at the level of the particular commodities.

The research finds, firstly, that spillover effects in export activities from JVs located in the same industry on local firms are negative in all the panel specifications. Negative competition effects from JV export activities outweigh any possible positive effects from technology or knowledge transfer. However, there is evidence that negative effects decrease in absolute value with time, and commodity-level analysis even suggests positive commodity-specific spillover effects for the later part of the panel. It suggests that negative competition effects become smaller in comparison with positive effects from foreign presence. Commodity-level analysis emphasizes

different strength of spillover effects for beginning of exports to CIS and non-CIS countries: spillover effects are strongly positive for non-CIS and insignificant for beginning of exports to CIS. Thus we cannot say yet, if the change in aggregate industrial spillovers is due to increasing positive spillover effects from JVs, or changed share of non-CIS exports, or just increased competitiveness of Russian firms.

Overall spillover effect of foreign presence in regional exports on a domestic firm's export activities is ambiguous. But, there tend to be positive effects from JVs on the regional level on the decision of the local firms to begin exports. This means that JVs help domestic enterprises to gain access to international markets through developing export infrastructure, accumulating general knowledge in export operations or training specialists in export. Commodity-level analysis suggests that this kind of spillovers is positive only for the beginning of exports to nonCIS countries, supporting the statement that exporting to CIS differs from exporting to the rest of the world.

Additionally, spillover effects from JVs located in the same region depend positively on the level of education in the region. The higher is the proportion of population with secondary education, the higher are spillovers from JVs in the same region. An explanation for this result on the regional level is labor mobility from JVs to local enterprises, and the fact that better educated managers and workers are more able of carrying knowledge about technologies and know-how with them when they change jobs. Therefore, our paper finds additional evidence of the importance of human capital as a factor of production.

5. Bibliography.

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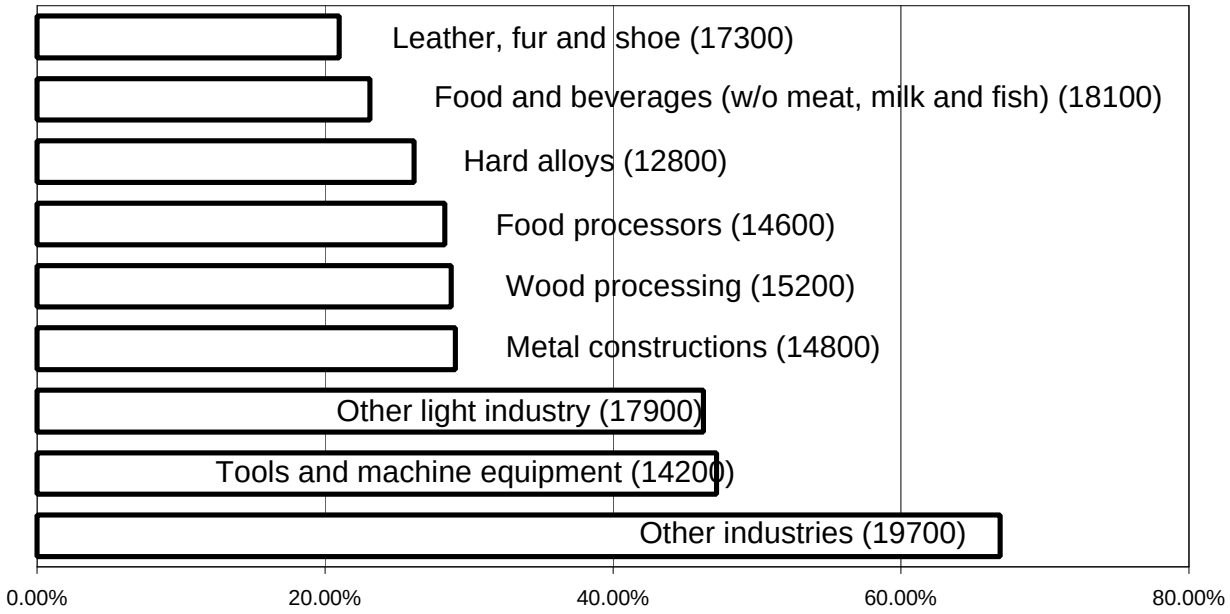
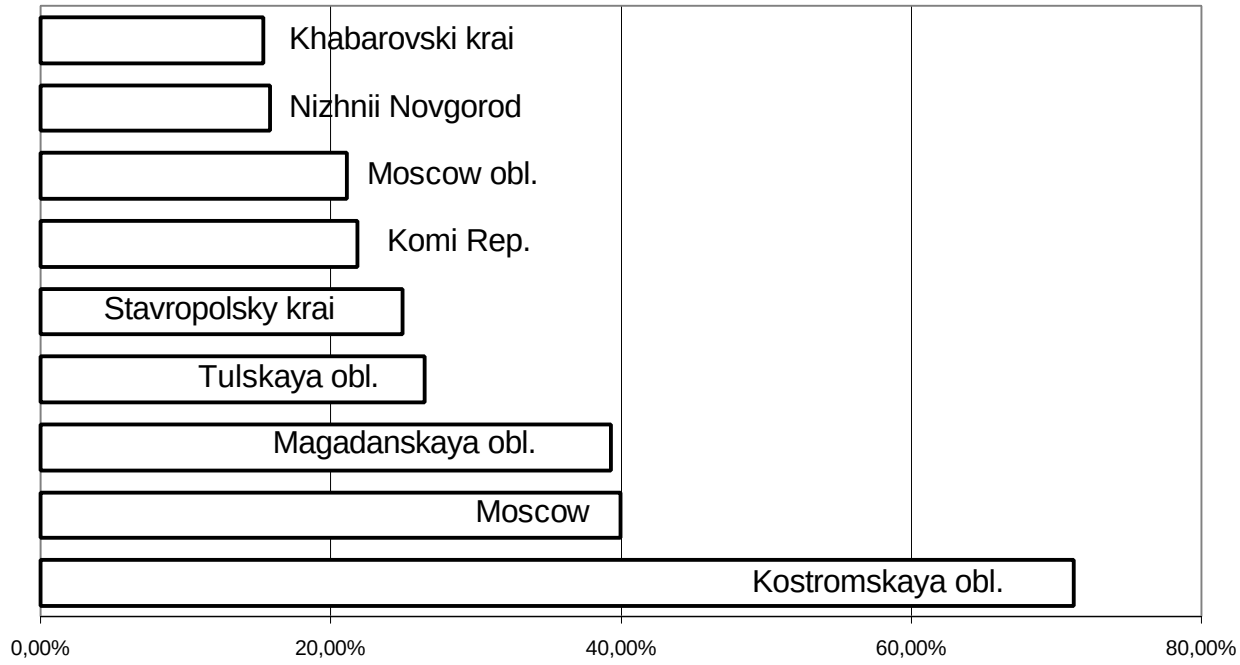
6. Appendices

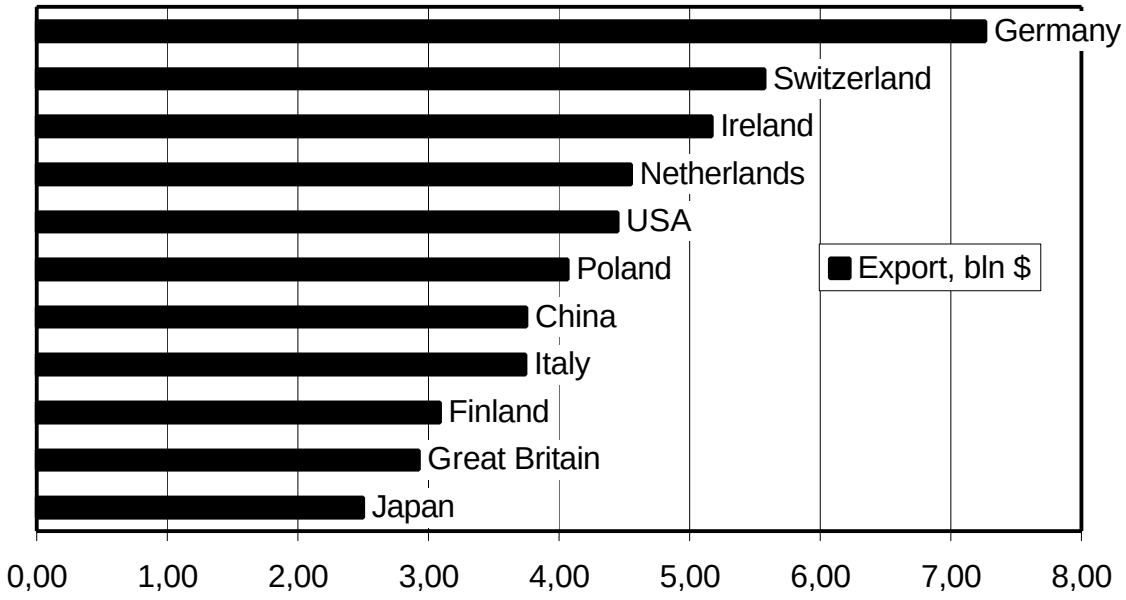
Largest Industry Shares of FDI exports in 1996. 3 digit OKONH industry classification.



Largest Region Shares of FDI exports in 1996



Major Export Destinations in 1997, bln $



JV share in exports selected countries, 1997

Table 6-1. Summary statistics for main variables, Firm-level analysis

Year	Variable	Obs	Mean	Std. Dev.	Min	Max
1993	ExpJ	29234	0.057	0.076	0	0.409
	ExpR	29234	0.081	0.061	0	0.358
	ExpJf	29234	0.116	0.182	0	1
	ExpRf	29234	0.056	0.124	0	1
	ExpJRf	29234	0.074	0.233	0	1
1994	ExpJ	32118	0.081	0.102	0	0.669
	ExpR	32118	0.112	0.089	0	0.479
	ExpJf	32118	0.145	0.161	0	1
	ExpRf	32118	0.068	0.122	0	1
	ExpJRf	32118	0.102	0.260	0	1
1996	ExpJ	29722	0.081	0.092	0	0.631
	ExpR	29722	0.125	0.095	0	0.453
	ExpJf	29722	0.127	0.135	0	0.804
	ExpRf	29722	0.087	0.127	0	0.760
	ExpJRf	29722	0.084	0.208	0	1
1997	ExpJ	26867	0.077	0.092	0	0.731
	ExpR	26867	0.104	0.088	0	0.493
	ExpJf	26867	0.136	0.129	0	0.989
	ExpRf	26867	0.089	0.128	0	0.879
	ExpJRf	26867	0.092	0.215	0	1

Binary dependent variables' statistics

	Exporting firm	Not exporting	Entered exports	Not entered exports	Continued exports	Exited exports
1993	997	5472	-	-	-	-
1994	2329	4341	2225	20756	1837	644
1996	4815	1612	3762	14270	2835	707
1997	3865	2290	906	16227	4773	1474

Note that due to fixed-effect regressions only those firms remained in the sample, which changed their export behaviour through the panel. Hence small number of non-exporting firms in each year in the second column

Correlations

	ExpJ	ExpR	ExpJf	ExpRf	ExpJRf	
ExpJ	1					25710
ExpR	-0.011	1				6848
ExpJf	-0.184	-0.003	1			
ExpRf	0.044	-0.187	-0.040	1		
ExpJRf	0.026	-0.046	0.103	0.100	1	

Table 6-2 Summary statistics of main variables, commodity-level analysis

Variable	Obs	Mean	Min	Max	Description
					JVs' share in Exports of:
ExpRJf	177577	0,02	0,00	1,00	Region-Industry, excl. commodity
ExpRf	177577	0,09	0,00	1,00	Region, excl. commodity
ExpJf	177577	0,06	0,00	1,00	Industry, excl. commodity
TNExpR	177577	0,02	0,00	1,00	Commodity in a Region
TNExpJ	177577	0,10	0,00	1,00	Commodity outside Region
dpr	49302	0,16	-0,29	2,28	% change in export price of commodity
di	177577	0,02	-0,05	0,70	% change in export tariff for commodity

Correllation table of main variables, commodity-level analysis

	ExpRJf	ExpRf	ExpJf	TNExpR	TNExpJ	dpr	di
ExpRJf	1,00						
ExpRf	0,03	1,00					
ExpJf	0,05	-0,01	1,00				
TNExpR	0,18	0,02	0,02	1,00			
TNExpJ	0,02	0,01	0,11	0,07	1,00		
dpr	-0,01	-0,02	-0,04	-0,04	-0,12	1,00	
di	0,00	0,01	-0,01	0,00	-0,03	0,77	1,00

7. Tables

Table 7-1. Panel fixed effect LOGIT regressions.

5 digit OKONH industry classification. Indicator of exporting firm as a dependent variable.

ExpJ	6.08	1.52	1.472	1.551	1.546	1.499	1.532	1.524	1.525	1.534
	[17]**	[4.3]**	[4.2]**	[4.4]**	[4.4]**	[4.2]**	[4.3]**	[4.3]**	[4.3]**	[4.4]**
ExpR	9.08	1.13	1.124	1.118	1.118	1.123	1.14	1.13	1.14	1.14
	[26]**	[2.79]**	[2.76]**	[2.75]**	[2.75]**	[2.76]**	[2.81]**	[2.78]**	[2.80]**	[2.79]**
ExpJf	-0.65	-0.53	-2.388	-0.542	-0.54	-2.421	-0.56	-0.59	-0.55	-0.58
	[6.8]**	[4.8]**	[4.9]**	[4.7]**	[4.7]**	[4.9]**	[4.9]**	[4.8]**	[4.8]**	[4.9]**
ExpRf	3.5	-0.44	-0.589	1.004	-0.596	1.013	-0.60	-0.58	-0.61	-0.58
	[16]**	[2.49]*	[2.47]*	[1.71]	[2.51]*	[1.72]	[2.48]*	[2.38]*	[2.55]*	[2.39]*
ExpJRf	-0.85	-1.21	-1.194	-1.186	-0.388	-0.482	-1.19	-1.185	-1.36	-1.37
	[7.1]**	[8.7]**	[8.7]**	[8.6]**	[0.76]	[0.94]	[8.7]**	[8.6]**	[8.1]**	[8.1]**
Crossterms			**Manufacturing Industry Dummy**				**Secondary Education in Region**			
ExpJf * ( )			1.99			2.02	1.43			1.33
			[3.97]**			[3.99]**	[0.84]			[0.77]
ExpRf * ( )				**-1.87**		**-1.87**		-0.85		-1.49
				[2.94]**		**[2.95]****		[0.28]		[0.46]
ExpJRf * ( )					-0.86	-0.76			3.12	3.10
					[1.62]	[1.43]			[1.82]	[1.82]
D94		0.95	0.94	0.95	0.94	0.95	0.94	0.941	0.939	0.94
		[21]**	[21]**	[21]**	[21]**	[21]**	[21]**	[21]**	[21]**	[21]**
D96		2.52	2.53	2.53	2.52	2.54	2.521	2.522	2.521	2.521
		[49]**	[49]**	[49]**	[49]**	[49]**	[49]**	[49]**	[49]**	[49]**
D97		2.11	2.11	2.11	2.11	2.11	2.103	2.104	2.105	2.103
		[44]**	[44]**	[44]**	[44]**	[44]**	[44]**	[44]**	[44]**	[44]**
Obs.	25710	25710	25710	25710	25710	25710	25710	25710	25710	25710
Firms	6848	6848	6848	6848	6848	6848	6848	6848	6848	6848

Absolute value of z statistics in brackets, * significant at 5%; ** significant at 1%

4 digit OKONH industry classification.

ExpJf * ( )			0.481			0.438	1.38			1.243
			[1.31]			[1.19]	[0.76]			[0.68]
ExpRf * ( )				**-1.642**		**-1.585**		-1.495		-1.954
				[2.65]**		**[2.55]***		[0.49]		[0.64]
ExpJRf * ( )					-0.413	-0.317			2.535	2.577
					[0.77]	[0.59]			[1.62]	[1.64]

3 digit OKONH industry classification.

ExpJf * ( )			-3.863			-3.738	5.135			4.693
			[4.95]**			[4.80]**	[1.96]*			[1.79]
ExpRf * ( )				**-1.421**		**-1.391**		-1.655		-1.895
				[2.30]*		**[2.20]***		[0.55]		[0.63]
ExpJRf * ( )					-0.59	-0.335			2.454	2.235
					[1.52]	[0.80]			[1.64]	[1.48]

Table 7-2. Decision of local firms to begin/continue export.

5 digit OKONH industry classification. Marginal effects in LOGIT. 5digit OKONH industry classification.

	Export Entrance LOGIT			Export Continue LOGIT			Export Entrance LOGIT			Export Entrance LOGIT			Export Continue LOGIT		
	1996-97	1994-96	1993-94	1996-97	1994-96	1993-94	1996-97	1994-96	1993-94	1996-97	1994-96	1993-94	1996-97	1994-96	1993-94
ExpJ	0.144	0.691	0.273	0.86	0.372	0.473	0.134	0.737	0.236	0.143	0.688	0.272	0.874	0.389	0.48
	[9.9]**	[21]**	[12]**	[13]**	[5.6]**	[4.4]**	[8.2]**	[20]**	[9.9]**	[9.8]**	[20]**	[11]**	[13]**	[5.8]**	[4.4]**
dExpJ	0.018	0.757	0.194	0.459	0.772	0.393	0.013	0.766	0.185	0.022	0.759	0.19	0.479	0.77	0.399
	[0.48]	[15]**	[5.4]**	[2.3]**	[7.5]**	[2.7]**	[0.34]	[16]**	[5.20]**	[0.61]	[16]**	[5.4]**	[3.1]**	[7.5]**	[2.7]**
ExpR	0.029	0.052	0.054	0.097	-0.115	0.179	0.029	0.056	0.051	0.037	0.052	0.035	0.157	-0.11	0.178
	[1.64]	[1.45]	[1.80]	[1.40]	[1.40]	[1.11]	[1.60]	[1.57]	[1.74]	[2.06]*	[1.45]	[1.14]	[2.26]*	[1.33]	[1.11]
dExpR	-0.054	0.075	-0.093	-0.178	0.474	0.588	-0.054	0.07	-0.099	-0.038	0.08	-0.057	-0.114	0.458	0.611
	[1.91]	[1.75]	[2.70]**	[1.45]	[4.14]**	[3.01]**	[1.92]	[1.63]	[2.95]**	[1.33]	[1.88]	[1.64]	[0.91]	[4.1]**	[2.98]**
ExpJf	-0.006	-0.155	-0.101	-0.035	-0.053	-0.165	**0.007**	**-0.12**	**0.042**	-0.005	-0.154	-0.098	-0.035	-0.055	-0.165
	[0.70]	[13]**	[12]**	[1.10]	[1.44]	[3.14]**	**[0.38]**	**[4.20]****	**[2.31]***	[0.64]	[13]**	[12]**	[1.09]	[1.51]	[3.14]**
ExpRf	0.038	0.029	0.025	0.077	-0.1	-0.29	0.038	0.029	0.019	0.024	-0.031	-0.058	-0.029	-0.106	-0.317
	[3.08]**	[1.13]	[2.49]*	[1.66]	[1.49]	[3.63]**	[3.11]**	[1.14]	[1.42]	[1.68]	[1.02]	[2.61]**	[0.60]	[1.47]	[3.6]**
ExpJRf	0.011	0.021	0.009	-0.003	-0.057	-0.17	0.01	0.021	0.01	0.004	0.012	0	-0.058	-0.076	-0.177
	[1.19]	[1.47]	[0.96]	[0.08]	[1.20]	[1.91]	[1.13]	[1.44]	[0.99]	[0.45]	[0.81]	[0.05]	[1.43]	[1.55]	[1.98]*
Crossterms with foreign presence							**(Processing Industry**			**(Secondary Education Deviation in a Region)**					
ExpJf * ( )							**-0.015**	**-0.042**	**-0.159**						
							[0.76]	**[1.34]**	**[7.9]****						
ExpRf * ( )										**0.19**	**0.54**	**0.766**	**1.618**	**2.67**	**0.916**
										[1.26]	**[1.86]**	**[3.19]****	**[2.94]****	**[3.18]****	**[0.71]**
Crossterm Variable							-0.003	0.026	-0.007	0.061	0.117	0.088	0.186	-0.477	-0.049
							[0.71]	[2.99]**	[1.51]	[1.48]	[1.64]	[2.27]*	[1.28]	[2.35]*	[0.21]
Constant	-0.143	-0.235	-0.173	0.107	0.186	0.151	-0.14	-0.257	-0.164	-0.142	-0.231	-0.169	0.105	0.176	0.149
Obs.	17133	18032	22981	6247	3542	2481	17133	18032	22981	17110	18013	22953	6245	3542	2481
Absolute value of z statistics in brackets, * significant at 5%; ** significant at 1%															

4 digit OKONH industry classification.

ExpJf * ( )							**-0.091**	**0.022**	**-0.186**						
							[4.6]**	**[0.63]**	**[9.9]****						
ExpRf * ( )										**0.188**	**0.486**	**0.739**	**1.508**	**2.878**	**1.104**
										[1.26]	**[1.69]**	**[3.12]****	**[2.74]****	**[3.42]****	**[0.86]**
Crossterm Variable							0.007	0.023	0.001	0.059	0.123	0.079	0.216	-0.524	-0.057
							[1.48]	[2.57]*	[0.26]	[1.45]	[1.70]	[2.06]*	[1.48]	[2.57]*	[0.25]
3 digit OKONH industry classification.															
ExpJf * ( )							**-0.108**	**-0.505**	**-0.636**						
							[3.29]**	**[5.7]****	**[8.0]****						
ExpRf * ( )										**0.104**	**0.317**	**0.623**	**1.435**	**2.408**	**0.212**
										[0.71]	**[1.11]**	**[2.65]****	**[2.62]****	**[2.98]****	**[0.18]**
Crossterm Variable							0.006	0.067	0.007	0.066	0.129	0.065	0.184	-0.47	0.09
							[1.21]	[7.30]**	[1.37]	[1.64]	[1.80]	[1.67]	[1.27]	[2.32]*	[0.40]

Table 7-3. Time path of spillover effects.

Panel fixed effect LOGIT. Indicator of exporting firm as a LHS variable. 5digit OKONH industry classification.

ExpJ		1.58	1.59	1.56	1.56
		[4.5]**	[4.5]**	[4.6]**	[4.5]**
ExpR	1.38		1.41	1.19	1.39
	[3.5]**		[3.5]**	[3.0]**	[3.5]**
ExpJf	-0.39	-0.49		-0.49	-0.49
	[3.6]**	[4.7]**		[4.7]**	[4.6]**
ExpRf	-0.15	-0.18	-0.15		-0.17
	[0.71]	[0.85]	[0.71]		[0.83]
ExpJRf	-1.03	-1.04	-1.05	-1.03	
	[7.8]**	[7.9]**	[8.0]**	[7.8]**	
Crossterms of:	**(ExpJ)**	**(ExpR)**	**(ExpJf)**	**(ExpRf)**	**(ExpJRf)**
( ) * D93	4.43	0.98	**-0.71**	**0.36**	**-0.87**
	[8.0]**	[1.28]	**[4.3]****	**[1.47]**	**[3.6]****
( ) * D94	2.43	1.47	**-0.45**	**-0.04**	**-0.84**
	[6.7]**	[3.1]**	**[3.1]****	**[0.17]**	**[4.9]****
( ) * D96	0.48	1.19	**-0.49**	**-0.87**	**-1.24**
	[1.14]	[2.6]**	**[2.45]***	**[2.91]****	**[5.9]****
( ) * D97	0.91	1.66	**-0.23**	**-0.84**	**-1.34**
	[2.19]*	[3.3]**	**[1.29]**	**[2.90]****	**[6.6]****
D94	1.03	0.86	0.88	0.96	0.91
	[19]**	[12]**	[17]**	[18]**	[20]**
D96	2.75	2.45	2.43	2.58	2.47
	[45]**	[31]**	[44]**	[43]**	[49]**
D97	2.31	1.98	1.98	2.17	2.06
	[39]**	[26]**	[38]**	[39]**	[44]**
Observations	25725	25725	25725	25725	25725
Number of okpo	6853	6853	6853	6853	6853
Absolute value of z statistics in brackets, * significant at 5%; ** significant at 1%					

Table 7-4. Changes in foreign presence.

5 digit OKONH industry classification. Marginal effects in LOGIT with DEntry, DExit as LHS.

	Export Entrance LOGIT			Export Continue LOGIT		
	1996-97	1994-96	1993-94	1996-97	1994-96	1993-94
ExpJ	0.144	0.692	0.273	0.872	0.391	0.476
	[9.9]**	[21]**	[12]**	[13]**	[5.9]**	[4.5]**
DExpJ	0.018	0.749	0.193	0.478	0.77	0.389
	[0.49]	[16]**	[5.4]**	[3.11]**	[7.5]**	[2.63]**
ExpR	0.028	0.055	0.068	0.101	-0.109	0.156
	[1.58]	[1.53]	[2.24]*	[1.46]	[1.32]	[0.97]
DExpR	-0.052	0.115	-0.075	-0.155	0.473	0.583
	[1.84]	[2.63]**	[2.16]*	[1.27]	[4.1]**	[2.98]**
ExpJf	-0.006	-0.154	-0.1	-0.03	-0.043	-0.168
	[0.69]	[12]**	[12]**	[0.94]	[1.17]	[3.19]**
ExpRf	0.04	0.084	0.053	0.084	-0.08	-0.25
	[3.21]**	[3.01]**	[3.14]**	[1.80]	[1.18]	[3.09]**
ExpJRf	0.011	0.015	0.008	-0.036	-0.146	-0.242
	[1.24]	[1.04]	[0.84]	[0.87]	[2.70]**	[2.64]**
dExpRf	**0.02**	**0.159**	**0.053**			
	[1.04]	**[5.09]****	**[3.56]****			
dExpJRf				**-0.156**	**-0.16**	**-0.202**
				[3.15]**	**[3.39]****	**[3.43]****
Obs.	17133	18032	22981	6247	3542	2481
Constant	-0.143	-0.241	-0.177	0.107	0.185	0.156
	[36]**	[40]**	[42]**	[8.7]**	[12]**	[8.9]**
Absolute value of z statistics in brackets, * significant at 5%; ** significant at 1%						

4 digit OKONH industry classification

ExpRf *	**0.021**	**0.158**	**0.048**			
	[1.09]	**[4.98]****	**[3.32]****			
ExpJRf *				**-0.14**	**-0.097**	**-0.21**
				[3.21]**	**[2.12]***	**[4.03]****

3 digit OKONH industry classification

ExpRf *	**0.016**	**0.155**	**0.051**			
	[0.85]	**[4.96]****	**[3.49]****			
ExpJRf *				**-0.094**	**-0.136**	**-0.212**
				[2.47]*	**[3.33]****	**[4.09]****

Table 7-5. Commodity-level entry analysis. LOGIT and MLOGIT marginal effects reported.

	Simple logits		Multinomial logit 1			Mlogit 1, subsample			Multinomial logit 2			Mlogit 2, subsample		
	1	2	Non-Cis	Mixed	CIS	Non-Cis	Mixed	CIS	Non-Cis	Mixed	CIS	Non-Cis	Mixed	CIS
dex34	0.0126	0.0093	0.0015	0.0050	0.0033	0.0016	0.0034	0.0018	0.0015	0.0050	0.0033	0.0014	0.0033	0.0018
	[23.2]**	[12.8]**	[5.85]**	[13.68]**	[9.13]**	[4.66]**	[6.89]**	[3.29]**	[5.87]**	[13.7]**	[9.18]**	[4.48]**	[6.97]**	[3.24]**
ExpJ	0.0073	0.0114	0.0031	0.0031	-0.0026	0.0037	0.0021	0.0034	0.0030	0.0030	-0.0025	0.0032	0.0020	0.0033
	[3.19]**	[4.32]**	[3.00]**	[3.58]**	[1.48]	[3.30]**	[2.45]*	[1.54]	[2.87]**	[3.50]**	[1.41]	[3.05]**	[2.43]*	[1.50]
ExpR	0.0030	0.0056	-0.0003	0.0002	0.0028	0.0006	0.0011	0.0030	-0.0003	0.0003	0.0028	0.0005	0.0011	0.0030
	[2.60]**	[4.51]**	[0.49]	[0.44]	[4.24]**	[1.09]	[2.40]*	[3.95]**	[0.49]	[0.45]	[4.26]**	[0.97]	[2.45]*	[3.96]**
ExpRJ	0.0035	0.0060	0.0021	0.0008	-0.0002	0.0017	0.0014	0.0014	0.0021	0.0007	-0.0002	0.0015	0.0013	0.0014
	[1.63]	[2.41]*	[2.46]*	[1.05]	[0.12]	[2.04]*	[1.60]	[0.71]	[2.43]*	[0.98]	[0.11]	[2.00]*	[1.57]	[0.70]
TNExpJ	-0.0019	**0.0001**	**0.0007**	-0.0004	**-0.0029**	**0.0013**	0.0002	**-0.0030**	**0.0014**	0.0006	**-0.0052**	0.0012	0.0006	**-0.0028**
	[2.17]*	**[0.13]**	**[2.53]***	[1.16]	**[3.87]****	**[3.87]****	[0.42]	**[3.41]****	**[3.74]****	[1.12]	**[3.94]****	[3.45]**	[1.35]	**[2.86]****
TNExpR	0.0054	**0.0047**	**0.0027**	0.0003	**0.0015**	**0.0020**	0.0004	**0.0013**	**0.0026**	0.0001	**0.0019**	0.0016	0.0003	**0.0008**
	[5.23]**	**[4.52]****	**[7.53]****	[0.77]	**[1.78]+**	**[5.17]****	[1.11]	**[1.41]**	**[5.23]****	[0.17]	**[1.62]**	[3.93]**	[0.69]	**[0.84]**
ExpJf	0.0031	**0.0008**	0.0020	0.0000	0.0014	0.0008	0.0002	-0.0007	0.0020	0.0000	0.0014	0.0006	0.0002	-0.0008
	[1.97]*	**[0.38]**	[3.09]**	[0.02]	[1.44]	[0.95]	[0.26]	[0.44]	[3.16]**	[0.01]	[1.43]	[0.71]	[0.36]	[0.50]
ExpRf	-0.0014	**0.0005**	0.0022	-0.0009	-0.0048	0.0023	-0.0010	-0.0043	0.0022	-0.0009	-0.0048	0.0021	-0.0010	-0.0043
	[0.85]	**[0.32]**	[4.40]**	[1.31]	[3.84]**	[4.98]**	[1.67]+	[2.33]*	[4.40]**	[1.33]	[3.83]**	[4.83]**	[1.72]+	[2.35]*
ExpRJf	0.0002	-0.0015	-0.0003	0.0003	0.0001	-0.0003	-0.0005	-0.0010	-0.0003	0.0003	0.0000	-0.0003	-0.0005	-0.0011
	[0.09]	[0.74]	[0.39]	[0.45]	[0.04]	[0.47]	[0.81]	[0.55]	[0.38]	[0.43]	[0.03]	[0.52]	[0.76]	[0.59]
di		-0.0141	-0.0027	-0.0020	-0.0067	-0.0033	-0.0016	-0.0118	-0.0027	-0.0017	-0.0066	-0.0033	-0.0013	-0.0116
		[4.17]**	[2.09]*	[2.39]*	[3.31]**	[1.68]+	[1.92]+	[4.62]**	[2.09]*	[2.10]*	[3.24]**	[1.88]+	[1.68]+	[4.53]**
dpr		0.0015				0.0003	0.0001	0.0019				0.0002	0.0001	0.0018
		[2.08]*				[0.75]	[0.56]	[3.57]**				[0.56]	[0.58]	[3.33]**
Proc. Dummy									0.0001	0.0003	-0.0001	-0.0009	0.0003	-0.0004
									[0.20]	[1.45]	[0.28]	[2.60]**	[1.07]	[0.88]
Processed commodity dummy, cross term with:														
TNExpJ									-0.0012	-0.0018	0.0032	-0.0009	-0.0021	-0.0017
									[2.06]*	[2.23]*	[2.02]*	[0.83]	[1.88]+	[0.76]
TNExpR									0.0001	0.0003	-0.0004	0.0010	0.0005	0.0017
									[0.09]	[0.43]	[0.21]	[1.32]	[0.62]	[0.80]
Observations	170950	47643	170950	170950	170950	47643	47643	47643	170950	170950	170950	47643	47643	47643

Absolute value of z statistics in brackets

+ significant at 10%; * significant at 5%; ** significant at 1%

Table 7-6 Commodity-level entrance multinomial logit with lags and increments of independent variables

	Multinomial Entrance logit			Multinomial Entrance logit			Multinomial Entrance logit			Multinomial Entrance logit		
	Non-Cis	Mixed	CIS	Non-Cis	Mixed	CIS	Non-Cis	Mixed	CIS	Non-Cis	Mixed	CIS
dex34	0.0015	0.0050	0.0033	0.0015	0.0033	0.0018	0.0015	0.0049	0.0032	0.0014	0.0033	0.0016
	[6.03]**	[13.64]**	[8.97]**	[4.72]**	[6.82]**	[3.31]**	[5.95]**	[13.69]**	[9.01]**	[4.53]**	[6.96]**	[3.25]**
ExpJ	0.0028	0.0031	-0.0026	0.0031	0.0020	0.0027	0.0027	0.0029	-0.0025	0.0027	0.0020	0.0024
	[2.84]**	[3.63]**	[1.46]	[2.88]**	[2.48]*	[1.28]	[2.72]**	[3.55]**	[1.40]	[2.71]**	[2.48]*	[1.20]
ExpR	-0.0003	0.0003	0.0028	0.0006	0.0011	0.0029	-0.0003	0.0003	0.0028	0.0005	0.0011	0.0027
	[0.46]	[0.53]	[4.36]**	[1.19]	[2.43]*	[3.98]**	[0.47]	[0.54]	[4.38]**	[1.06]	[2.50]*	[3.89]**
ExpRJ	0.0020	0.0007	-0.0003	0.0015	0.0013	0.0014	0.0020	0.0007	-0.0002	0.0013	0.0012	0.0012
	[2.37]*	[0.96]	[0.14]	[1.84]+	[1.58]	[0.73]	[2.37]*	[0.92]	[0.11]	[1.80]+	[1.54]	[0.73]
di	-0.0027	-0.0019	-0.0066	-0.0030	-0.0016	-0.0115	-0.0026	-0.0017	-0.0065	-0.0030	-0.0013	-0.0106
	[2.08]*	[2.38]*	[3.33]**	[1.66]+	[1.88]+	[4.75]**	[2.05]*	[2.06]*	[3.26]**	[1.88]+	[1.63]	[4.69]**
dpr				0.0003	0.0001	0.0018				0.0002	0.0001	0.0016
				[0.91]	[0.66]	[3.75]**				[0.73]	[0.73]	[3.59]**
Proc. Dummy							0.0002	0.0004	0.0000	-0.0007	0.0004	-0.0001
							[0.82]	[2.06]*	[0.10]	[1.80]+	[1.39]	[0.15]
Lagged independent variables (as of 1996)												
TNExpJ[-1]	0.0015	-0.0001	-0.0042	0.0027	0.0009	-0.0024	0.0029	0.0017	-0.0055	0.0027	0.0016	-0.0014
	[3.42]**	[0.28]	[4.00]**	[4.50]**	[1.51]	[1.98]*	[4.22]**	[2.34]*	[2.90]**	[4.17]**	[2.19]*	[1.09]
TNExpR[-1]	0.0037	0.0006	0.0002	0.0027	0.0008	0.0015	0.0036	0.0005	0.0013	0.0021	0.0007	0.0014
	[6.81]**	[0.92]	[0.17]	[4.71]**	[1.44]	[1.07]	[5.16]**	[0.59]	[0.72]	[3.83]**	[1.24]	[1.08]
ExpJf[-1]	0.0020	-0.0001	0.0018	0.0007	-0.0001	-0.0005	0.0020	-0.0001	0.0018	0.0004	0.0000	-0.0007
	[2.97]**	[0.18]	[1.82]+	[0.75]	[0.13]	[0.29]	[3.06]**	[0.14]	[1.80]+	[0.44]	[0.03]	[0.43]
ExpRf[-1]	0.0019	-0.0007	-0.0046	0.0019	-0.0009	-0.0038	0.0019	-0.0007	-0.0045	0.0018	-0.0009	-0.0035
	[3.61]**	[1.08]	[3.63]**	[4.15]**	[1.42]	[2.13]*	[3.59]**	[1.10]	[3.63]**	[4.15]**	[1.46]	[2.11]*
ExpRJf[-1]	-0.0008	0.0003	0.0006	-0.0005	-0.0007	-0.0008	-0.0008	0.0003	0.0006	-0.0005	-0.0006	-0.0009
	[1.04]	[0.34]	[0.50]	[0.67]	[1.02]	[0.45]	[1.04]	[0.38]	[0.54]	[0.79]	[0.96]	[0.48]
First difference of independent variables (value in 1997- value in 1996)												
dTNExpJ	0.0005	-0.0004	-0.0029	0.0011	0.0001	-0.0032	0.0011	0.0004	-0.0052	0.0011	0.0006	-0.0030
	[1.68]+	[1.12]	[3.81]**	[3.41]**	[0.39]	[3.81]**	[2.82]**	[0.85]	[4.10]**	[3.20]**	[1.33]	[3.33]**
dTNExpR	0.0026	0.0002	0.0009	0.0018	0.0003	0.0010	0.0025	-0.0002	0.0013	0.0015	0.0002	0.0004
	[7.22]**	[0.39]	[1.01]	[4.67]**	[0.85]	[1.07]	[5.12]**	[0.26]	[1.01]	[3.67]**	[0.41]	[0.40]
dExpJf	-0.0002	0.0003	0.0006	-0.0004	0.0004	-0.0074	-0.0003	0.0003	0.0007	-0.0005	0.0004	-0.0073
	[0.21]	[0.31]	[0.21]	[0.52]	[0.60]	[2.91]**	[0.26]	[0.37]	[0.26]	[0.65]	[0.65]	[2.95]**
dExpRf	0.0057	-0.0075	-0.0146	0.0043	-0.0036	-0.0124	0.0056	-0.0074	-0.0145	0.0036	-0.0034	-0.0115
	[4.33]**	[3.21]**	[2.77]**	[3.54]**	[1.41]	[2.54]*	[4.28]**	[3.23]**	[2.76]**	[3.13]**	[1.39]	[2.56]*
dExpRJf	-0.0003	-0.0005	-0.0049	-0.0005	-0.0002	-0.0036	-0.0003	-0.0005	-0.0047	-0.0006	-0.0002	-0.0033
	[0.34]	[0.56]	[3.02]**	[0.59]	[0.26]	[1.37]	[0.33]	[0.55]	[2.94]**	[0.75]	[0.28]	[1.33]
Processed good dummy crossterm with:												
TNExpJ[-1]							-0.0022	-0.0032	0.0018	-0.0021	-0.0030	-0.0034
							[2.41]*	[2.91]**	[0.79]	[1.30]	[1.94]+	[1.30]
TNExpR[-1]							0.0000	0.0000	-0.0017	0.0019	0.0003	-0.0190
							[0.03]	[0.03]	[0.68]	[2.11]*	[0.25]	[1.30]
dTNExpJ							-0.0011	-0.0016	0.0031	-0.0009	-0.0020	-0.0012
							[1.90]+	[2.00]*	[2.04]*	[0.82]	[1.84]+	[0.60]
dTNExpR							0.0001	0.0005	-0.0004	0.0008	0.0006	0.0019
							[0.13]	[0.60]	[0.23]	[0.95]	[0.70]	[1.00]
Observat.	170950	170950	170950	47643	47643	47643	170950	170950	170950	47643	47643	47643

Absolute value of z statistics in brackets
+ significant at 10%; * significant at 5%; ** significant at 1%

Table 7-7 Exit from non-CIS exports. Multinomial logit , Marginal effects reported

	Regression1			Regression2			Regression2, major goods		
	To mixed	quit Export	Close	To mixed	quit Export	Close	To mixed	quit Export	Close
dex34	0.063	-0.098	-0.026	0.0635	-0.0952	-0.0250	0.0446	-0.1441	-0.0176
	[3.05]**	[2.56]*	[1.53]	[3.05]**	[2.46]*	[1.50]	[1.60]	[3.11]**	[1.64]
ExpJ	0.077	-0.229	-0.065	0.0789	-0.2165	-0.0611	0.0922	-0.3286	-0.0135
	[1.75]+	[2.10]*	[1.32]	[1.75]+	[1.95]+	[1.26]	[1.75]+	[2.38]*	[0.59]
ExpR	0.074	-0.185	-0.043	0.0762	-0.1692	-0.0408	0.1491	-0.3004	-0.0034
	[2.14]*	[2.10]*	[1.05]	[2.18]*	[1.96]*	[1.03]	[2.93]**	[2.34]*	[0.15]
ExpRJ	0.022	-0.066	-0.023	0.0192	-0.0311	-0.0228	0.0202	-0.1806	0.0754
	[0.36]	[0.41]	[0.43]	[0.31]	[0.19]	[0.43]	[0.24]	[1.17]	[2.23]*
TNExpJ	0.016	**-0.239**	**-0.072**	0.0521	**-0.2986**	**-0.0651**	-0.0444	**-0.2481**	**-0.1212**
	[0.53]	**[3.72]****	**[2.59]****	[1.29]	**[3.04]****	**[1.94]+**	[0.62]	**[1.71]+**	**[2.70]****
TNExpR	-0.021	-0.019	-0.017	-0.0011	-0.1098	-0.0717	-0.0393	0.0012	-0.0538
	[0.60]	[0.38]	[1.18]	[0.03]	[1.44]	[1.80]+	[0.60]	[0.01]	[1.64]
ExpJf	-0.135	-0.154	0.053	-0.1329	-0.1359	0.0523	-0.1066	-0.2542	-0.0004
	[1.28]	[1.47]	[1.34]	[1.29]	[1.30]	[1.36]	[1.03]	[1.22]	[0.02]
ExpRf	0.078	0.099	-0.126	0.0752	0.0913	-0.1229	-0.0222	0.1446	-0.0126
	[1.26]	[0.88]	[1.32]	[1.21]	[0.82]	[1.30]	[0.24]	[1.18]	[0.47]
ExpRJf	0.038	-0.012	**0.095**	0.0393	-0.0323	**0.0923**	0.0453	0.0696	0.0095
	[0.89]	[0.12]	**[2.84]****	[0.93]	[0.32]	**[2.70]****	[0.85]	[0.53]	[0.46]
di	-0.022	0.087	-0.052	-0.0116	0.1702	-0.0508	-0.0573	0.2839	-0.1008
	[0.39]	[0.79]	[0.75]	[0.20]	[1.52]	[0.72]	[0.43]	[1.13]	[1.52]
en	-0.041	**0.088**	0.0032	-0.0430	**0.1185**	0.0057	-0.0509	**0.1277**	-0.0260
	[1.29]	**[1.77]+**	[0.14]	[1.36]	**[2.11]***	[0.23]	[1.32]	**[2.04]***	[1.27]
dpr							-0.0044	-0.0358	0.0245
							[0.12]	[0.54]	[1.73]+
Proc. Dummy				0.0202	0.0393	-0.0048	0.0278	0.0896	0.0060
				[1.30]	[1.43]	[0.49]	[0.73]	[1.10]	[0.50]
Processed good dummy crossterm with:									
TNExpJ				-0.0770	0.2350	0.0060	-0.3180	0.9085	-0.3145
				[1.14]	[1.75]+	[0.12]	[0.99]	[1.26]	[1.92]+
TNExpR				-0.0257	0.1967	**0.0719**	0.1090	-0.1207	**0.0966**
				[0.54]	[1.95]+	**[1.69]+**	[1.01]	[0.54]	**[2.26]***
Observations	2963	2963	2963	2963	2963	2963	772	772	772

Absolute value of z statistics in brackets
+ significant at 10%; * significant at 5%; ** significant at 1%

Table 7-8 Non-CIS export exit multinomial logit. Lags and increments of independent variables.

	Regression3			Regression3, major goods		
	To mixed	quit Export	Close	To mixed	quit Export	Close
dex34	0.0627	-0.0980	-0.0246	0.0431	-0.1552	-0.0183
	[3.07]**	[2.54]*	[1.42]	[1.68]+	[3.31]**	[1.78]+
ExpJ	0.0844	-0.2309	-0.0619	0.0907	-0.3580	-0.0215
	[1.93]+	[2.09]*	[1.19]	[1.85]+	[2.59]**	[0.86]
ExpR	0.0855	-0.2005	-0.0409	0.1509	-0.3548	-0.0038
	[2.55]*	[2.24]*	[0.98]	[3.44]**	[2.76]**	[0.19]
ExpRJ	0.0248	-0.0626	-0.0208	0.0107	-0.0877	0.0734
	[0.4151]	[0.39]	[0.39]	[0.13]	[0.56]	[2.30]*
di	-0.0254	0.0947	-0.0537	-0.0443	0.2639	-0.1141
	[0.46]	[0.85]	[0.71]	[0.39]	[0.96]	[1.45]
en	-0.0401	0.0968	0.0010	-0.0389	0.1351	-0.0316
	[1.26]	[1.74]+	[0.04]	[1.02]	[2.11]*	[1.49]
dpr				-0.0178	-0.0478	0.0255
				[0.62]	[0.66]	[1.66]+
Increment of independent variable:						
TNExpJ	0.0345	**-0.2300**	**-0.0621**	-0.0044	**-0.3819**	**-0.1381**
	[1.24]	**[3.80]****	**[2.59]****	[0.07]	**[2.73]****	**[3.31]****
TNExpR	-0.0207	0.0043	-0.0163	-0.0277	0.0080	0.0033
	[0.63]	[0.09]	[1.25]	[0.50]	[0.09]	[0.24]
ExpJf	-0.0623	-0.0746	0.0582	-0.1870	-0.1386	0.0156
	[0.76]	[0.56]	[1.88]+	[1.66]+	[0.56]	[0.52]
ExpRf	-0.2495	0.4285	-0.0935	-0.7534	0.3499	0.0811
	[2.51]*	[1.94]+	[0.67]	[3.73]**	[0.85]	[1.77]+
ExpRJf	0.0279	0.0679	**0.0681**	-0.0068	0.2389	0.0250
	[0.84]	[0.71]	**[2.98]****	[0.14]	[1.69]+	[1.41]
Lagged independent variable						
TNExpJ[-1]	0.0043	**-0.2466**	**-0.0872**	-0.1447	**-0.2890**	**-0.1356**
	[0.09]	**[2.68]****	**[2.41]***	[1.88]+	**[1.73]+**	**[3.16]****
TNExpR[-1]	-0.0423	-0.0376	-0.0316	-0.0369	-0.1387	-0.0525
	[0.98]	[0.55]	[1.25]	[0.55]	[1.26]	[1.74]+
ExpJf[-1]	-0.1268	-0.1773	0.0540	-0.0386	-0.3444	-0.0034
	[1.20]	[1.59]	[1.14]	[0.46]	[1.53]	[0.11]
ExpRf[-1]	0.0939	0.0851	-0.1236	0.0686	0.1224	-0.0243
	[1.49]	[0.74]	[1.29]	[0.76]	[0.88]	[0.79]
ExpRJf[-1]	0.0510	-0.0229	**0.1035**	0.0671	0.0292	0.0156
	[1.12]	[0.20]	**[2.82]****	[1.10]	[0.19]	[0.73]
Observations	2963	2963	2963	772	772	772

Absolute value of z statistics in brackets
+ significant at 10%; * significant at 5%; ** significant at 1%