

RUSSIAN REGIONAL EXTERNAL TRADING 1997-2001
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Abstract: Using recent regional data from Russia, the pattern of trade of Russia's regions with the CIS and rest of the world (non-CIS) is examined using a series of gravity equations. Some evidence of shifting trade patterns toward non-CIS countries is found, but trade still has an inward orientation from the Soviet era reflecting infrastructure and other ties that remain in place. Evidence suggests an export oriented trade policy by the Russian government can grow the Russian economy at both the regional and national levels. Very little evidence was found that corruption enhanced or diverted trade in any way.

Keywords: Europe, Eurasia, Former Soviet Union, trade, gravity, exports, imports

JEL: p27, r5, f21

1. Introduction

As Russia negotiates to join the WTO and possibly the EU in the future, the pattern of trade by individual Russian regions may change with some regions dramatically increasing their trade with both the "near abroad" CIS countries as well as non-CIS countries. The OECD works with Russia to promote the full integration of Russia in to the world economy and WTO including the role regional governments will play in integrating the economy with the rest of the world (OECD, 2003). How much individual regions trade externally with both CIS and non-CIS countries has until recently been poorly studied with few exceptions (e.g. Djankov and Freund, 2002) perhaps due to lack of data on trade patterns. However, recently Goskomstat (Regionii Rossii, various years) has begun publishing regional trade data by region that reveal trading patterns with the CIS and non-CIS countries though not amongst individual regions. Such

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data allow use of gravity models that previously could only be applied to Russia overall or as one of the former Soviet republics (e.g. van Selm, 1995). Russian regional borders tend to be perceived as quite high with lots of explicit (e.g. regional price controls) and implicit (e.g. a poor business environment) barriers to inter-regional trade as well as external trade. Like the U.S., no data on inter-regional trade exists, so we explore regional external trade only. By examining regional trade within the old Soviet Union minus the Baltic republics versus all other countries, we hope to shed light on whether dramatic trade pattern changes have occurred after just a few transition years or if trade within the CIS is still the norm as regions default to trading much as they did in the Soviet era. In the literature on U.S. trade, a unique data set has allowed analysis of the influence of the Canadian-U.S. border on trade using Canadian province by province data (McCallum, 1995). The study finds that even the long, very open U.S.-Canadian border with no language barrier does matter in trade patterns. A second study critical of the gravity model but using the same data reinforces the border effect conclusion and predicts a 20-50 percent reduction in trade because of borders between industrialized countries (Anderson and Wincoop, 2003). Because of limited data, we use the gravity models of the McCallum study, but assume that the within CIS border is rather porous with both sides speaking Russian to do business and many old links from the Soviet era. Gravity models are similar to more complicated models such as Heckscher-Ohlin in describing bilateral trade (Deardorff, 1998).

2. Overview of Russian Regional Trade. Russia's regions were cut off from world trade throughout the Soviet period. From railway tracks with different gauges to Foreign Trade Organizations in Moscow administering trade, regions had very little independence with trade diversion likely to be stronger the closer a region was to an external Soviet border. Within Soviet space, trade with CIS countries was strong as many industries were created as monopolies that required trade between a Soviet republic and a region with no thought of a border existing between the two. We assume that just 6 years after the collapse of the Soviet Union many of these trade patterns remained intact if for no other reason than

inertia. A shifting of trade volume away from the CIS countries toward non-CIS countries in general and the EU in particular (e.g. Pleines, 2005) would be one impact of the transition era that standard trade theory would predict. Descriptively, regional trade has improved since the 1998 crisis (Tables 1a-b.). Exports to non-CIS countries have been boosted by higher gas and oil prices with little change in variation. Imports from non-CIS countries fell substantially as the ruble depreciated and still have not recovered to 1997 levels causing a growing trade surplus of \$65 billion in 2001 that is roughly equivalent to the current U.S. trade deficit. Trade with the CIS countries was perhaps permanently reduced with the 1998 crisis as both exports and imports fell roughly 50% and had not recovered by the end of 2001. Clearly, Russia is shifting energy exports away from the CIS to bigger markets. Trade is also low in absolute terms as total exports to all CIS countries is smaller than a single U.S. state's exports in a similar year (e.g. the state of Georgia exported \$13.7 billion in 1999). So descriptively, the shifting of trade away from the CIS following the breakup of the Soviet Union is empirically evident though others have found the former ties to be changing slowly (Frankel, 1997). Trade intensity defined as the volume of trade divided by aggregate Gross Regional Product also illustrates the shift as the 5:1 ratio in 1997 rises in later years.

Table 1a. Region Sample with Descriptive Statistics 1997-2001

Millions of US\$	Total Non-CIS exports	Total CIS exports	CIS/ Non-CIS exports	Total Non-CIS imports	Total CIS imports	CIS/ Non-CIS imports
<i>Karelia</i>	2465	27,5	1,12%	600,9	44,7	7,44%
<i>Komi</i>	4026	165,7	4,12%	528,5	111,3	21,06%
<u>Arkhangelsk</u>	3059,8	123,2	4,03%	454,1	60,7	13,37%
<i>Vologda</i>	6611,7	109,3	1,65%	519,1	276	53,17%
<u>Murmansk</u>	3621,6	153,2	4,23%	1156	53,5	4,63%
<u>St. Petersburg</u>	9174,8	762,6	8,31%	15302,3	1318,9	8,62%
<u>Leningrad</u>	8104,4	148	1,83%	2251,8	87,8	3,90%
<i>Novgorod</i>	1420,9	58,4	4,11%	466,1	54,8	11,76%
<i>Pskov</i>	384	34,1	8,88%	455,8	50	10,97%
Bryansk	256,3	150,8	58,84%	270,8	425,8	157,24%

Vladimir	614,8	204,5	33,26%	466,3	320,4	68,71%
Ivanovo	211,6	123,8	58,51%	157,7	745,4	472,67%
Kaluga	278,8	130,3	46,74%	517,5	168,3	32,52%
Kostroma	310,5	56,1	18,07%	78,1	17,3	22,15%
<u>Moscow</u>	94714,8	16147,9	17,05%	61037,7	7393	12,11%
<u>Moscow Obl</u>	7167,4	1476,2	20,60%	7655	2395,4	31,29%
Orel	706,7	80,8	11,43%	666	105,6	15,86%
Ryazan	2216,9	113,2	5,11%	326,9	111,2	34,02%
Smolensk	1492,6	54,3	3,64%	435,4	88,6	20,35%
Tver	364	150,6	41,37%	335	302,5	90,30%
Tula	3038,6	240,3	7,91%	542	252,9	46,66%
Yaroslavl	2946	291	9,88%	775,6	227	29,27%
Mary-El	124	16,2	13,06%	88,5	21,7	24,52%
Mordva	45,5	56,1	123,30%	110,5	46,9	42,44%
Chuvash	272,2	70,1	25,75%	255,4	76,4	29,91%
Kirov	1279,6	90	7,03%	138,7	50,2	36,19%
Nizhnii Novgorod	3452,9	925,3	26,80%	1578,2	528,8	33,51%
Belgorod	1794,9	1002,2	55,84%	1233,6	1500,5	121,64%
Voronezh	748,4	195,3	26,10%	451,4	388,3	86,02%
Kursk	335,4	262,8	78,35%	360,8	592	164,08%
Lipetsk	5019,7	110,7	2,21%	789	235	29,78%
Tambov	108	75,3	69,72%	253,1	126,5	49,98%
Kalmykia	690,2	89,2	12,92%	419,3	92,4	22,04%
Tatarstan	9454,6	1013,8	10,72%	1481,6	586,1	39,56%
<u>Astrakhan</u>	889,1	322,7	36,30%	348,9	152,2	43,62%
Volgograd	2964,5	456,4	15,40%	843,2	423,9	50,27%
Penza	152	131,6	86,58%	215,6	51,7	23,98%
Samara	10938,4	1089,3	9,96%	3035,9	1019,7	33,59%
Saratov	1480,3	220,6	14,90%	608	400,1	65,81%
Ulyanovsk	625,6	149	23,82%	340	97,7	28,74%
Adygeya	105,7	2,4	2,27%	58	8,8	15,17%
Dagestan	316,6	115,6	36,51%	99,7	167	167,50%
Karbardino-Balkar	48,8	28,8	59,02%	230,8	34,3	14,86%
Karachevo-Cherkess	7,4	22,9	309,46%	37	25	67,57%

North-Osetia	361	54,7	15,15%	261,3	57	21,81%
<u>Krasnodar</u>	3203,9	247,2	7,72%	2475,7	458	18,50%
Stavropol	1026,4	128,7	12,54%	543,8	158,9	29,22%
<u>Rostov</u>	2333,5	833,3	35,71%	1581,8	1439,7	91,02%
Bashkortostan	8424,5	1104,4	13,11%	925,3	331,9	35,87%
Udmurt	3078,5	116,9	3,80%	403,7	152,9	37,87%
Kurgan	578,5	343,7	59,41%	136,9	193,3	141,20%
Orenburg	4901,6	496,1	10,12%	508,9	1675,1	329,16%
Perm	8677,7	526,9	6,07%	1164,1	392,6	33,73%
Sverdlovsk	12041,4	1482,7	12,31%	2278,6	1349,7	59,23%
Chelyabinsk	7619	1138,6	14,94%	917,3	2177,2	237,35%
Altai Rep	113	52,2	46,19%	417,9	40,2	9,62%
Altai Krai	298,2	714,3	239,54%	352,5	337,1	95,63%
Kemerovo	7768,7	875,6	11,27%	772,1	658,6	85,30%
Novosibirsk	723,9	1062,5	146,77%	966,6	711,7	73,63%
Omsk	2438,6	1037,4	42,54%	491,7	575,5	117,04%
Tomsk	3252,4	180,7	5,56%	437,4	99,8	22,82%
Tyumen	53329,7	6902,2	12,94%	4525,1	818	18,08%
<i>Buryatia</i>	506,5	27,7	5,47%	120,6	280	232,17%
<i>Tuva</i>	58,6	0,1	0,17%	64,7	0,8	1,24%
Khakasia	1930,4	16,6	0,86%	296,2	597,9	201,86%
Krasnoyarsk	15502,7	368,6	2,38%	2380,6	778,6	32,71%
Irkutsk	12176,5	154,1	1,27%	1956,9	799,2	40,84%
<i>Chita</i>	482,2	8,4	1,74%	506,7	39,2	7,74%
Sakha	4256,3	18,6	0,44%	528,7	32,8	6,20%
<i>Jewish</i>	38,5	0,3	0,78%	21,1	1,9	9,00%
<i>Primorskii</i>	3375,5	11,3	0,33%	2291,4	72,9	3,18%
<i>Khabarovsk</i>	5455	10,6	0,19%	771,9	110,1	14,26%
<i>Amur</i>	303,8	1,8	0,59%	173,2	23,6	13,63%
<i>Kamchatka</i>	967	3,5	0,36%	621,3	22,5	3,62%
Magadan	57,2	0,3	0,52%	352,4	15	4,26%
<u>Sakhalin</u>	1519	10,1	0,66%	1161	37,7	3,25%
<u>Kaliningrad</u>	1700,2	54,7	3,22%	4710	163,1	3,46%

Notes: border with the CIS=**bold**, border with non-CIS=*italics*. Major Port of Entry to Russia=underline

Table 1b. Summary Statistics on Russian Regional Trade with CIS and non-CIS countries, 1997-2001

<u>Regional Exports to non-CIS countries</u>					
millions					
USD	1997	1998	1999	2000	2001
Total	68877,8	57766,7	60796,7	89142,8	85956,9
Mean	894,52	750,22	789,57	1157,70	1116,32
SD	2323,10	2003,19	2081,35	3053,74	2970,61
Coeff.					
Var.	2,60	2,67	2,64	2,64	2,66
<u>Regional Imports from non-CIS countries</u>					
millions					
USD	1997	1998	1999	2000	2001
Total	37191,8	31805,9	21582,1	22164,7	30348,8
Mean	483,01	413,06	280,29	287,85	394,14
SD	1876,37	1620,15	993,91	1080,26	1566,58
Coeff.					
Var.	3,88	3,92	3,55	3,75	3,97
Trade Surplus (% total trade)	29,87%	28,98%	47,60%	60,17%	47,81%
<u>Regional Exports to CIS countries</u>					
millions					
USD	1997	1998	1999	2000	2001
Total	11984,5	8910,2	6937	8241,9	9159,5
Mean	155,64	115,72	90,09	107,04	118,95
SD	702,48	402,92	321,11	315,26	298,48
Coeff.					
Var.	4,51	3,48	3,56	2,95	2,51
<u>Regional Imports from CIS countries</u>					
millions					
USD	1997	1998	1999	2000	2001
Total	9446,8	6792,7	5105,8	7570,9	6922,6
Mean	122,69	88,22	66,31	98,32	89,90
SD	260,61	180,95	120,09	220,00	178,51
Coeff.	2,12	2,05	1,81	2,24	1,99

Var.					
Trade					
Surplus					
(% total					
trade)	11,84%	13,48%	15,21%	4,24%	13,91%
Trade Intensity (X+M/GRP) with non-CIS countries, N=77					
	1997	1998	1999	2000	2001
Mean	20,6%	58,9%	42,1%	35,9%	33,1%
SD	19,1%	57,8%	43,3%	26,4%	25,0%
Coeff.					
Var.	0,93	0,98	1,03	0,73	0,76
Trade Intensity (X+M/GRP) with CIS countries, N=77					
	1997	1998	1999	2000	2001
Mean	4,1%	10,5%	6,8%	6,5%	5,9%
SD	3,5%	9,3%	7,6%	7,5%	7,5%
Coeff.					
Var.	0,84	0,89	1,11	1,16	1,26

3. Method

We employ a model similar to McCallum's but adjusted to the reality of post-Soviet space and available data. Specifically:

$$x(ij)t = a + by(i)t + cy(j)t + dDist + r1(non-CIS) + r2(CIS) + r3(Port) + r4(Yes) + r5(TI) + e(ij) \quad (1)$$

Here $x(ij)$ is the logarithm of shipments from a Russian region "i" to either the CIS or non-CIS countries in general as no comprehensive data on regional shipments to specific countries or other Russian regions is available. Therefore each region trades with the CIS overall or the rest of the world (non-CIS) overall. All data on both exports and imports are used initially followed by examining exports and import separately. " $y(i$ or $j)$ " is logarithm of the gross domestic product of a region, the CIS overall GDP, or the rest of the world's GDP. We also assume as in Sutyurin and Sherov (2005) that many regions still must go through Moscow to conduct trade either because the physical infrastructure from Soviet times forces a region to do so,

and/or because many of the Western and new Russian companies created in the transition are headquartered in Moscow. So “Dist” represents the logarithm of the distance a region is from Moscow as reported in Regionii Rossii (1998-2003) statistical handbooks. “r1-r3” are dummy variables to account for border features of a region – if the region borders a non-CIS country, borders a CIS country, or has a major external port (e.g. Murmansk). These dummies control for border features that may outweigh the distance from Moscow in terms of a region’s ability to conduct external trade. Finally, “t” represents the years 1997-2001 because unlike McCallum’s study, a fixed effects panel can be formed where data on the entire population of regions over several years is available. Use of several years is important as the lack of variation due to each trading country’s data not being available can be alleviated by panel data. OLS regressions can then be run for different years as well as switching the dependent/independent variables to consider *imports* in to a region from the CIS and non-CIS areas.

To incorporate other data as well as test for sensitivity to sample size, we consider additional regressions where two variables that bracket the sample period are added in. The first (YES) is a dummy variable for those regions that voted “yes” for Yeltsin over Zhuganov in the 1996 presidential election (Lavrov, et.al., 1997). Those regions voting “no” were seen as an anti-reform “red” belt across Russia and are hypothesized to have less trade with the non-CIS area as they are relatively more inward looking regions with stronger border controls.

The second variable is a corruption index (TI) created by Transparency International Russia (2002) to examine the extent of regional corruption. The corruption index is a 0-1 index based on sociological interviews with 5000 citizens and 1800 entrepreneurs in 40 regions. The smaller sample analysis will also serve as a sensitivity test to see if a limited 40-region sample behaves differently than all the regions during the period. No hypothesis is proposed for corruption as it is unclear whether a more corrupt region would have more or less trade a priori, but it is important to test to see if corruption is trade enhancing or trade diverting.

3. Results

Trade within the CIS yields results similar to other studies of trade across borders (Table 2). Own GRP and importing-region GRP are positive and highly significant as expected. Distance from Moscow is negative illustrating the gravity equation impact within Russia of greater distance from the capital hurting trade reflecting the Soviet infrastructure built to orient regions towards Moscow. Dummy variables for location next to a CIS country, next to a non-CIS country, having a major port and voting for Yeltsin in the 1996 election reveal that trade is not impacted by any of these factors in the overall sample except if a region is adjacent to a CIS or non-CIS country. CIS trade is doubled or even tripled if the region is next to a CIS country. CIS trade is only 1/3 of what it would be otherwise $\{\exp(-0.98)=0.38\}$ when a region is adjacent to a non-CIS country. These results hold for the earlier and later transition periods (1997-1998 and 1999-2001) except being adjacent to a CIS country now increases trade by 2-3 times when the sample is divided.

Table 2. Summary Regressions on Russian Regional Trade with CIS Countries, 1997-2001

	1	2	3	4	5
constant	-6.74***	5.779***	8.127***	4.81***	0.584***
	0.65***	0.852***	0.912***	1,622***	1.654***
regional GRP	0.90***	0.79***	1.06***	-1.1***	1.115***
	0.05***	0.071***	0.072***	0,254***	0.069***
CIS GDP	0.998***	0.969***	1.06***	1.033***	0.407***
	0.051***	0.064***	0.076***	0,063***	0.255***
distance	-0.41***	0.363***	-0.44***	0.355***	0.474***
	0.044***	0.064***	0.058***	0.054***	0.063***
adjacent CIS	1.05***	0.894***	1.156***	0.966***	1.158***
	0.1***	0.139***	0.124***	0.121***	0.129***
adjacent	-0.98***	-	-	-	-

non-CIS		0.853***	1.049***	0.734***	1.129***
	0.146***	0.217***	0.179***	0.171***	0.196***
large port	-0.08***	0.059***	0.129***	0.125***	0.158***
	0.117***	0.15***	0.157***	0.133***	0.16***
for Yeltsin- 96?	0.024***	0.058***	0.021***	0.049***	0.002***
	<u>0.1</u> ***	<u>0.141</u> ***	<u>0.121</u> ***	<u>0.118</u> ***	<u>0.129</u> ***
N	748***	300	448	380	368
<u>Adj. R- squared</u>	<u>0.6</u> ***	<u>0.61</u> ***	<u>0.64</u> ***	<u>0.65</u> ***	<u>0.66</u> ***

Notes: Standard Errors are in italics below coefficients, *** significant at the 1% level, ** =at 5%, *=10%, unmarked=15% and above, Equation 1: Full Sample 1997-2001, Equation 2: 1997-1998 only, Equation 3: 1999-2001 only, Equation 4: Imports only, all years, Equation 5: Exports only, all years

CIS equations 4 and 5 examine only imports and only exports between a region and the CIS countries as the dependent variable. Here the elasticity signs change as the larger a region's GRP, the less it will import from the CIS (import elasticity of -1.1) but the more it will export to the CIS (export elasticity of 1.115). Likewise, the wealthier the CIS countries are the more they will export in to a region (a region's imports) and the less they will import from a region (a region's exports). Distance and the dummy variables all behave similarly to equations 1-3.

Trade with the rest of the world (non-CIS) again shows positive and significant coefficients on own GRP and rest of world GRP as found in other studies (Table 3). Distance from Moscow now becomes insignificant except for weak significance in the latter period 1999-2001. So a region trading outside the old Soviet Union except the Baltics is able to break away from the Soviet infrastructure somewhat. The adjacent to a CIS country dummy has no impact on trading while the adjacent to a non-CIS country dummy changes from having a trade reducing impact in the early years {exp(-0.166)=0.85} to a trade enhancing impact in the later years

{exp(0.447)=1.56} which illustrates the Russian economy opening up to world trade. Having a large port doubles trade, though more so in the earlier years than later period. Pro-Yeltsin regions traded 1.5 times more with the rest of the world than anti-Yeltsin regions, but again more so in the earlier years than later years.

Table 3. Summary Regressions on Russian Regional Trade with Non-CIS countries, 1997-2001

	1	2	3	4	5
constant	-13.12***	-10.67***	-15.38***	78.46***	-71.12***
	0,9	-1.207	-1.29	18,426	-26.718
regional GRP	-0.94***	-0.835***	-1.051***	---7.661***	-1.3***
	-0,05***	-0.074***	-0.077***	--1,783***	-0.072***
nonCIS GDP	-1.118***	0.909***	1.29***	0.761***	6.46**
	0.052***	0.067***	0.076***	0,053***	2.59***
distance	-0.049***	-0.006***	-0.07**	-0.118***	0.02***
	0,033***	0.05***	0,042***	0.033***	0.051***
adjacent CIS	- 0.144***	0.05***	-0.062***	0.12***	-0.148***
	0.104***	0.156***	0.134***	0.11***	0.151***
adjacent non- CIS					
	0.188***	-0.166***	0.447***	0.222***	0.153***
	0.119***	0.202***	0.141***	0.136***	0.173***
large port					
	0.67***	0.863***	0.512***	1.035***	0.305***
	0.089***	0,15***	0.1***	0.127***	0.113***
for Yeltsin- 96?					
	0.335***	0.453***	0.238***	0.17***	0.5***
	<u>0.1</u> ***	<u>0.155</u> ***	<u>0.126</u> ***	<u>0.1</u> ***	<u>0.155</u> ***
N	760	304	456	380	380
<u>Adj. R- squared</u>	<u>0.57</u> ***	<u>0.53</u> ***	<u>0.62</u> ***	<u>0.61</u> ***	<u>0.63</u> ***

Notes: Standard Errors are in italics below coefficients, *** significant at the 1% level, ** =at 5%, * =10%, unmarked=15% and above, Equation 1:

Full Sample, 1997-2001, Equation 2: 1997-1998 only, Equation 3: 1999-2001 only, Equation 4: Imports only, all years, Equation 5: Exports only, all years

Non-CIS equations 4 and 5 examine only imports and only exports between a region and the rest of the world economy minus the CIS. Wealthier regions import much less from non-CIS countries with a large negative elasticity of 7.6 while exporting slightly more with higher wealth (1.3). As the non-CIS GDP grows regions will import less (0.76) but export much more (6.5) which bodes well for export led growth of Russia's regions as a policy to grow the Russian economy. Distance from Moscow still negatively impacts imports from the non-CIS, but not exports possibly due to a large share of exports being natural gas and oil which don't flow through Moscow. Being adjacent to a CIS country does not impact on imports or exports while being adjacent to a non-CIS country raises import or exports about 20%. Having a port, as expected, increases imports 3 times, but exports by only about 35%. Being pro-Yeltsin means a region will import about 20% more and export 65% more all else equal.

Two Sensitivity Tests

One test of sensitivity is to reduce the number of regions in the sample. The 40 regions where a corruption index is available were used for the smaller sample (Table 4).

Table 4. Summary Regressions on Russian Regional Trade with Corruption Indices Included

	<u>Non-CIS</u>			<u>CIS</u>		
	1997- 2001	1997- 1998	1999- 2001	1997- 2001	1997- 1998	1999- 2001
constant	-9.64*** 1.03	6.36*** 1.37	13.83*** 1.59	3.923*** 0,8	3.151*** 0.95	-5.59*** 1.22
regional						
GRP	0.651*** 0.059	0.48*** 0.077	0.89*** 0.09	0.627*** 0,062	0.51*** 0.079	0.815*** 0.091
NCIS or CIS GDP	1.018***	0.75***	1.32***	0.64***	0.6***	0.748***

	<u>Non-CIS</u>			<u>CIS</u>		
	1997- 2001	1997- 1998	1999- 2001	1997- 2001	1997- 1998	1999- 2001
	<i>0.06</i>	<i>0.08</i>	<i>0.09</i>	<i>0,067</i>	<i>0.069</i>	<i>0.108</i>
distance	-0.041 <i>0.039</i>	0.065 <i>0.063</i>	0.134*** <i>0.05</i>	0.156*** <i>0.046</i>	-0.093 <i>0.06</i>	0.221*** <i>0.06</i>
adjacent CIS	0.139 <i>0.119</i>	0.165 <i>0.185</i>	0.08 <i>0.149</i>	1.143*** <i>0.119</i>	1.007*** <i>0.152</i>	1.214*** <i>0.16</i>
adjacent non-CIS	0.242* <i>0.134</i>	-0.12 <i>0.203</i>	0.593*** <i>0.173</i>	-1.7*** <i>0.179</i>	1.515*** <i>0.224</i>	-1.75*** <i>0.234</i>
large port	0.387*** <i>0.108</i>	0.462** <i>0.19</i>	0.264** <i>0.12</i>	-0.132 <i>0.142</i>	-0.184 <i>0.186</i>	-0.137 <i>0.192</i>
for Yeltsin- 96?	0.747*** <i>0.114</i>	0.91*** <i>0.175</i>	0.528*** <i>0.144</i>	0.594*** <i>0,12</i>	0.686*** <i>0.162</i>	0.451*** <i>0.158</i>
Actual Corrup.	<i>not included</i>			0.683*** <i>0,179</i>	0.92*** <i>0.257</i>	0.468** <i>0.23</i>
Estimated Corr.	-0.209 <i>0.205</i>	-0.22 <i>0.345</i>	-0.166 <i>0.245</i>	- <i>0,245</i>	- <i>0.323</i>	-0.851** <i>0.33</i>
N	390	156	234	389	156	233
<u>Adj. R- squared</u>	<u>0,65</u>	<u>0,59</u>	<u>0,71</u>	<u>0,68</u>	<u>0,72</u>	<u>0,69</u>

Notes: Standard Errors are in italics below coefficients

*** significant at the 1% level, ** =at 5%, *=10%, unmarked=15% and above

Own GRP and trading partner's GDP again have a positive sign and are significant showing this result is robust to sample size. Distance from Moscow remains important for CIS trade, but only in the later period for non-CIS trade – the latter being an unexpected result that could only be explained by the smaller sample perhaps being more

linked to Moscow based trade than the overall sample. All dummy variables behave similarly to the larger sample with non-CIS results with an enhanced effect of being pro-Yeltsin doubling trade overall while the major port effect is reduced but still positive. Including both an actual corruption and survey estimated corruption index did not improve explanatory power at all with the non-CIS sample. Indeed, the actual corruption index is left out as the results were not significant at all.

Another test of sensitivity (tables not shown, available from the author) that is suggested by McCallum (1995) among other studies is to replace GRP with population as an instrumental variable (IV) in the regressions because the dependent variable (exports or imports) is a component of GRP (net exports) resulting in the independent variable possibly being correlated with the disturbance term. When this is done with the non-CIS equations using exports and imports but different time periods (equations 1-3), the overall fit (R-squared) falls while the signs on the elasticities remain the same though the size of the elasticities is smaller. All other variables are robust to the IV change except for the overall time period (eq. 1) being adjacent to a non-CIS country becomes negative and significant instead of positive and insignificant. Therefore for equations 1-3, results appear fairly robust to an IV change.

Non-CIS equations 4 and 5 using exports and imports only respectively are also analyzed with the IV modification. Both equations exhibit a small drop in overall fit similar to equations 1-3. In equation four (exports), the sign on the adjacent to a CIS country dummy and distance variables remain unchanged but are now significant while the adjacent to a non-CIS country dummy changes signs but remains insignificant. In equation five (imports), the regional population and distance elasticities both change sign and become insignificant. Further, the adjacent to a CIS country dummy changes sign but remains insignificant while the voted for Yeltsin dummy is unchanged but is strongly instead of weakly significant. We conclude that the export equation is robust to the IV change, but the import equation changes are too large and cause these results to be weaker than the other four equations (eqs. 1-4).

CIS equations 1-3 exhibit little impact from the IV modification with the overall fit slightly better and the elasticities more positive

than when GRP is used. The only other change is the vote for Yeltsin dummy now becomes very significant whereas in the GRP equations it is positive but not significant. Similar to equations 1-3, CIS equations four and five also have the vote for Yeltsin dummy become significant and the overall fit rises slightly. However, in the export equation, the CIS population elasticity completely changes – becoming very positive and significant. In the import equation, the regional population elasticity, similar to the non-CIS equation five also becomes positive and very significant. Therefore we conclude that in the case of the CIS equations, both equations 4 and 5 have results that are not robust to an IV modification with regards to the impact of own GRP and export/importing region GRP elasticities.

4. Conclusions

Regional trade is still profoundly influenced by the former Soviet Union's trade patterns but has begun to reorient towards trade patterns that would be expected of a fully integrated post-Soviet space. Location relative to Moscow is still important. Regions near the CIS will have relatively more trade with the CIS while those regions adjacent to non-CIS countries will trade less with the CIS. Wealthier regions will export more and import less from the CIS area. Having a port, being pro-Yeltsin (pro-reform) and adjacent to a non-CIS country appear to enhance trade relations with non-CIS countries. Support for a policy of export led growth is clear. Whether the regional exports will be able to diversify away from raw materials exports is a question beyond the scope of this paper. Exports can be used to pay for complimentary imports over time (Guisan and Exposito, 2004), but the large comparative advantage in the energy sector of Russia will mean a trade surplus for many years to come. And some regions may be better suited to export led growth than others as Sutyurin and Sherov (2005) point out.

At the overall regional level, corruption does not appear to divert or enhance trade with few variants of the model finding any significant corruption influence. Sensitivity tests using population as a proxy for GRP suggests results are fairly robust to an IV variable. Only the "import only" non-CIS equation appears to be sensitive to the variable change. The CIS equation for imports and exports only also show changes with the population variable.

Indeed, the population elasticity being positive further supports the idea of central planning from the Soviet era still exerting an influence on trade (Djankov and Freund, 2002) in that regions with very different per capita incomes still trade more with the CIS and non-CIS areas instead of just the wealthier regions.

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