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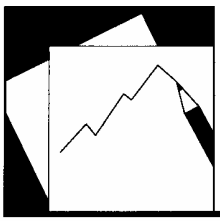

IMF Working Paper

Of Openness and Distance: Trade Developments in the Commonwealth of Independent States, 1993–2002

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Of Openness and Distance: Trade Developments in the Commonwealth of Independent States, 1993–2002

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Authorized for distribution by John Odling-Smee

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Abstract

This paper analyzes developments in the structure of trade in the Commonwealth of Independent States (CIS) during the transition decade, and finds that it changed less than in other transition economies. Trade openness of the CIS increased between 1993 and 1997, but has fallen to a lower-level plateau since then owing to regional and country-specific factors. These include slower progress in transition, geographic aspects, restrictions on trade, governance and corruption problems, weak infrastructure, lack of regional cooperation, and political conflicts. Regression results show that trade openness of the CIS countries would likely increase substantially if market-oriented reforms were pursued more vigorously.

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I. INTRODUCTION

More than ten years of transition have redefined the economies of the countries of the Commonwealth of Independent States (CIS)[2] and their interrelationships. The breakup of the Soviet Union resulted in a sharp decline in economy activity, but, following a turning point around 1996, the CIS economies have rebounded strongly, with real GDP growing by 12 percent on (unweighted) average between 2000 and 2002. While the stabilization and liberalization process in the CIS economies turned out to be lengthier than in other transition countries, by the end of the decade, most CIS economies had implemented the basic market mechanisms.

Trade between the former republics declined in the wake of the economic and political disintegration of the Soviet Union as a result of multiple adverse shocks: the Soviet and Council of Mutual Economic Assistance (CMEA) planning mechanisms (Brada (1976); IMF (1991)) were dismantled; payment and clearing procedures were discontinued, resulting in severe payments difficulties; the introduction of independent, inconvertible currencies during 1992–94 led to foreign exchange shortages; real sector integration was severely disrupted; declining incomes resulted in a demand shock; and the opening up to high-quality imports from developed market economies implied a supply shock. Political instability, including trade blockades, further inhibited trade.

This paper analyzes the developments in CIS trade patterns over the transition decade, following the initial decline. Section II describes the overall quantitative trends in CIS trade, the geographic reorientation of trade flows, and the commodity structure of CIS trade. In Section III, I investigate CIS trade openness in general and trade with the European Union (EU) in particular.[3] Regression analysis is used to compare the openness of the CIS countries and their trade with the EU to the Central and Eastern European transition economies and the Baltic countries (CEE+ countries).[4] Based on a gravity type model, I estimate the CIS economies' trade potential with the European Union (EU). Possible explanations for lower than expected CIS trade are discussed in Section IV, while the findings and policy implications are summarized in Section V.

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[2] The CIS was founded in December 1991 with Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, the Kyrgyz Republic, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan as member countries.

[3] I refer, but do not contribute, to the ongoing debate on the interrelationship between openness and growth.

[4] For the purpose of this paper, the CEE+ countries consist of Albania, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, the former Yugoslav Republic of Macedonia, Poland, Romania, the Slovak Republic, and Slovenia.

II. Developments in Commonwealth of Independent States' Trade During Transition

During the past ten years, CIS trade has rebounded from the shock of Soviet disintegration.[5] Following the initial decline, CIS trade recovered, as indicated by an increase in exports of 154 percent and imports by 128 percent in U.S. dollar terms between 1993 and 2002[6] (Tables 1 and 2). The trend of increasing trade was, however, interrupted by the 1998 Russian crisis and through 2002, total CIS imports did not rebound fully. While some CIS countries achieved high cumulative growth of trade volumes between 1994 and 2002, overall real growth in exports and imports was more modest and some countries showed a decline (Figure 1).

Table 1. CIS: Total Exports, 1993–2002
(In millions of U.S. dollars)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Armenia	171	242	357	290	233	221	232	300	342	243
Azerbaijan	993	637	547	631	781	607	929	1,745	2,314	1,772
Belarus	1,940	2,459	4,641	5,681	7,207	7,070	5,916	7,326	7,428	7,248
Georgia	227	156	151	199	230	331	361	330	571	538
Kazakhstan	1,107	3,227	5,256	5,926	6,497	5,511	5,598	9,138	8,647	9,930
Kyrgyz Republic	360	339	483	506	609	509	454	502	476	480
Moldova	484	565	745	795	875	632	463	471	570	680
Russia	44,047	63,078	77,595	83,979	85,077	71,389	72,453	102,998	82,535	99,925
Tajikistan	350	492	749	772	803	597	689	784	652	537
Turkmenistan	561	1,163	1,881	1,693	751	594	1,187	2,505	1,132	1,219
Ukraine	4,112	9,531	15,104	14,400	14,232	12,637	11,582	14,579	14,615	15,243
Uzbekistan	693	1,991	2,718	2,620	2,896	2,310	1,963	2,135	2,028	1,900
CIS total	55,045	83,880	110,228	117,491	120,192	102,406	101,827	142,815	121,310	139,716

Source: IMF, *Direction of Trade Statistics*, various issues.

[5] The analysis is based on official statistics. Complications arise from wide-spread barter arrangements, which—though partly covered by national accounts—are usually conducted at prices below market prices to avoid taxes and tariffs.

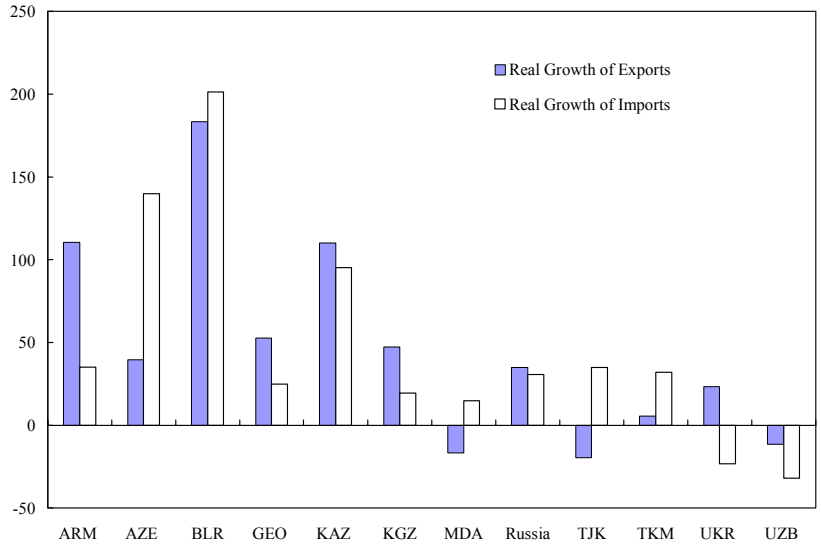
[6] I begin my analysis with 1993 data as the assessment of the Soviet and early transition periods is hampered by severe data problems due to statistical distortions; deviations from world market prices; and multiple administered exchange rates (Havrylyhsyn et al. (2000)).

Table 2. CIS: Total Imports, 1993–2002
(In millions of U.S. dollars)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Armenia	259	396	696	862	891	902	843	885	877	823
Azerbaijan	635	778	668	961	791	1,076	1,036	1,172	1,430	1,610
Belarus	2,474	2,978	5,505	6,939	8,639	8,530	6,674	8,646	8,049	9,068
Georgia	238	338	392	687	931	1,231	859	704	991	1,085
Kazakhstan	1,704	3,285	3,807	4,247	4,302	4,373	3,686	5,052	6,363	6,809
Kyrgyz Republic	447	316	392	795	709	841	610	554	464	593
Moldova	631	659	841	1,072	1,164	1,024	586	776	897	1,210
Russia	26,751	38,600	46,399	44,504	52,400	42,939	30,286	33,853	36,889	45,207
Tajikistan	532	547	810	668	750	711	663	675	688	705
Turkmenistan	586	904	1,364	1,313	1,228	1,007	1,478	1,788	1,558	1,432
Ukraine	4,165	11,082	20,077	17,586	17,114	14,676	11,844	13,955	16,797	18,727
Uzbekistan	918	2,455	3,030	4,854	4,538	2,931	2,481	2,078	2,303	2,370
CIS total	39,340	62,337	83,979	84,488	93,458	80,241	61,047	70,138	77,306	89,640

Source: IMF, *Direction of Trade Statistics*, various issues.

Figure 1. CIS: Real Growth of Exports and Imports, 1994–2002

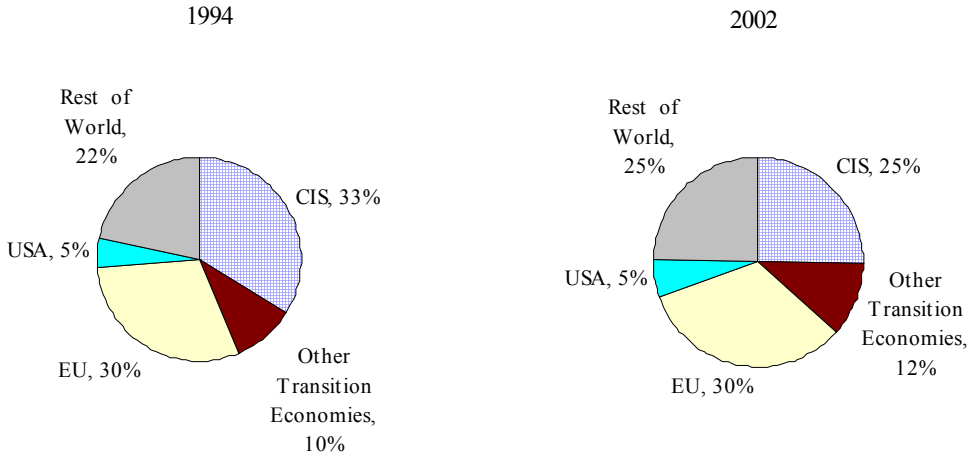


Source: IMF, *Direction of Trade Statistics*, various issues.

Note: Country abbreviations stand for Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

In geographic terms, a major reorientation of CIS trade has taken place (Figure 2). While intra-Soviet trade had exceeded 80 percent of total Soviet trade for the non-Russian republics in 1990 (Belkindas and Ivanova 1995), intra-CIS trade accounted for only 33 percent of total CIS trade in 1994 and fell further to 25 percent in 2002. The geographic distribution of trade varies widely among the CIS countries (Figure 3) and some CIS economies remain heavily dependent on intra-CIS trade.[7] On the import side, Belarus, Tajikistan, and Turkmenistan showed a higher intra-CIS share in 2002 than in 1994, while on the export side Tajikistan constitutes an exception to the overall trend of declining CIS shares.

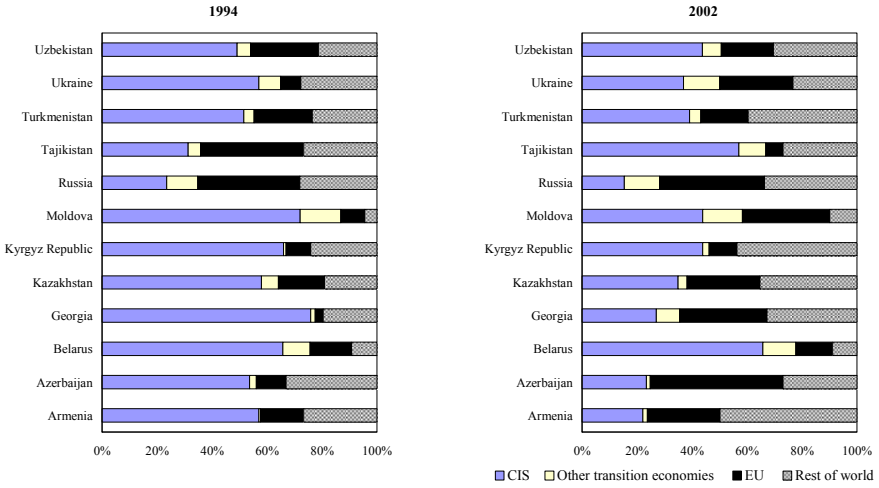
Figure 2. CIS: Directions of Trade, 1994 and 2002



Source: IMF, *Direction of Trade Statistics*, various issues.

[7] This contrasts with early reformers such as Poland, Hungary, the Czech Republic, and the Slovak Republic, which had managed to redirect their trade already prior to the breakup of the Soviet Union, partly because of a more limited reliance on the CMEA payments system (Rosati (1993)).

Figure 3. CIS: Directions of Trade by Country, 1994 and 2002



Source: IMF, *Direction of Trade Statistics*, various issues.

Many CIS economies show a high concentration of export commodities and markets, reflecting their natural resource endowments, but also the legacy of Soviet division of labor. Exports of oil play an important role for Kazakhstan, Azerbaijan, Russia and Turkmenistan, the latter two countries also being major gas exporters. Latest available data indicate that the three largest export products of each country accounted for an unweighted average of 67 percent of total exports of the CIS economies (Table 3). Although most CIS countries, except Azerbaijan and Belarus, saw the geographic concentration of export markets decline between 1995 and 2001, the share of the three main export markets in total exports remained a high 46 percent on unweighted average (Table 4). The concentration of commodities and markets renders the CIS economies vulnerable to changes in world market prices and developments in specific markets.

Table 3. CIS: Commodity Concentration of Exports
Share of the three main export products (in percent)

		1995	2001
Armenia	Precious stones and metals	33.0	34.7
	Base metals and articles thereof	11.0	12.3
	Minerals and chemicals	17.0	12.0
	Total	61.0	59.0
		1994	2002
Azerbaijan	Oil and oil products	32.5	88.8
	Cotton	15.5	1.0
	Metals	16.5	1.0
	Total	64.5	90.7
		1995	2002
Belarus	Machine building and metal processing	32.8	26.0
	Refineries products	11.7	20.8
	Chemicals and petrochemicals	26.6	14.1
	Total	71.0	61.0
		1995	2002
Georgia	Aircraft parts	0.0	16.1
	Unfinished products of iron and steel	21.8	14.1
	Beverages, spirits and vinegar	8.3	14.1
	Total	30.1	44.3
		1995	2002
Kazakhstan	Oil	16.7	50.6
	Steel products	14.5	9.8
	Copper	10.5	7.1
	Total	41.7	67.5
		1995	2001
Kyrgyz Republic	Nonferrous metallurgy	15.3	51.7
	Electric Energy	10.0	9.8
	Machine building	10.9	12.0
	Total	36.2	73.5
		1994	2001
Moldova	Beverages, spirits, vinegar and tobacco	40.1	44.1
	Vegetable products	17.6	13.9
	Textiles and textile products	5.2	18.5
	Total	62.8	76.6
		1994	2002
Russia	Oil and oil products	24.5	27.4
	Gas	16.4	15.3
	Metals	17.8	14.1
	Total	58.7	56.8
		1994	2001
Tajikistan	Aluminum	56.0	61.0
	Cotton fiber	27.7	11.0
	Electricity	5.2	12.0
	Total	88.9	84.0
		1994	2002
Turkmenistan	Gas	65.6	58.0
	Oil and oil products	8.5	14.0
	Cotton fiber	16.7	6.0
	Total	90.9	78.0
		1996	2002
Ukraine	Ferrous and nonferrous metals	32.6	39.3
	Machinery	14.4	14.5
	Agricultural products	21.3	13.2
	Total	68.3	67.1
		1994	2001
Uzbekistan	Cotton	51.3	24.4
	Gold	12.8	28.3
	Energy	0.0	11.8
	Total	64.0	64.5

Source: National authorities.

Table 4. CIS: Geographic Concentration of Exports, 1995 and 2001
Share of three main export markets (in percent)

	1995	2001
Armenia	61.9	43.6
Azerbaijan	56.8	60.0
Belarus 1/	51.7	64.5
Georgia	65.3	49.3
Kazakhstan	60.4	39.6
Kyrgyz Republic	65.3	52.8
Moldova	70.1	56.6
Russia	23.3	22.2
Tajikistan	64.5	44.6
Turkmenistan	50.7	47.9
Ukraine 1/	48.1	31.2
Uzbekistan	47.1	35.7

Sources: CIS Goskomstat; and IMF, *Direction of Trade Statistics*, various issues.
1/ Data for 1996 and 2001.

III. Openness and Distance in CIS Trade

The literature on the beneficial effects of trade openness is quite large.[8] Some of the key findings include the following: (i) Krueger (1998) underlines the link between participation in international trade and the transfer of know-how, as well as the fact that trade policy needs to be supported by other growth oriented structural measures; (ii) Berg and Krueger (2003) find a strong correlation between levels of openness and income, and also conclude that trade raises the marginal product of other reforms; and (iii) Dollar and Kraay (2002) show for a sample of 72 developing countries that in the post-1980 era, globalizers among developing countries achieved higher growth rates than nonglobalizers. While the evidence of close correlation between openness and growth is strong, the controversy over causality remains intense because of measurement difficulties, problems of endogeneity, and the correlation between openness and other variables such as the quality of institutions and growth-supporting high-quality infrastructure.[9] Rodrik et al. (2002) find that the effect of quality of

[8] See Alcalá and Ciccone (2001); Barro and Sala-i-Martin (1995); Choudri and Hakura (2000); Frankel and others (1998); Frankel and Romer (1999); Grossman and Helpman (1991). A detailed overview of the literature on trade and growth is given in Srinivasan (2001). See also Anderson and Neary (1996).

[9] Rodrik (1995). Rodriguez and Rodrik (1999) show that productivity gains result in higher exports by self-selection of efficient producers. Edwards (1998) finds that in a sample of 93 countries, more open economies show faster productivity growth, but leaves causality somewhat undetermined. By analyzing the impact of

(continued)

institutions on growth outweighs the importance of other factors, including trade. In their review of the literature, Rodriguez and Rodrik (1999) conclude that the question of causality between openness and growth has not been resolved.

The issue of what constitutes the appropriate measurement of openness also continues to be debated (Pritchett (1996) and Edwards (1993)), the most important distinction being between trade openness and policy openness. As trade policy is difficult to model, research has focused on the relationship between trade volumes and growth, although trade flows constitute only a proxy for policy. For the purpose of international comparability, "real openness" defined as nominal trade divided by GDP adjusted for purchasing power parity is the preferred measure as it combines natural openness with the effects of trade policy, and eliminates the cross-country differences in prices of non-traded goods (Alcalá and Ciccone 2001).[10] According to Pritchett (1996) and Edwards (1993), different measures of openness result in contradicting rankings of countries, and alternative empirical indicators of trade policy are individually and collectively uncorrelated.

The trade openness ratio of the CIS countries rose significantly from 5 percent in 1992 to about 15 percent in 1997.[11] It declined, however, as a consequence of the 1998 Russian crisis and, following a subdued recovery, reached a plateau towards the end of the period, at about 12 percent in 2002 (Figure 4).[12] Within the CIS, a significant dispersion between openness ratios prevails (Figure 5). Apart from lower nominal exports and imports, the decline in openness after 1997 can be attributed to (i) increases in GDP outpacing increases in trade in most CIS countries; (ii) the redirection of trade as new markets initially did not compensate for the decline in intra-CIS trade; and (iii) lower imports due to a depreciation of the real exchange rate, which was only partially offset by a slow increase in exports.

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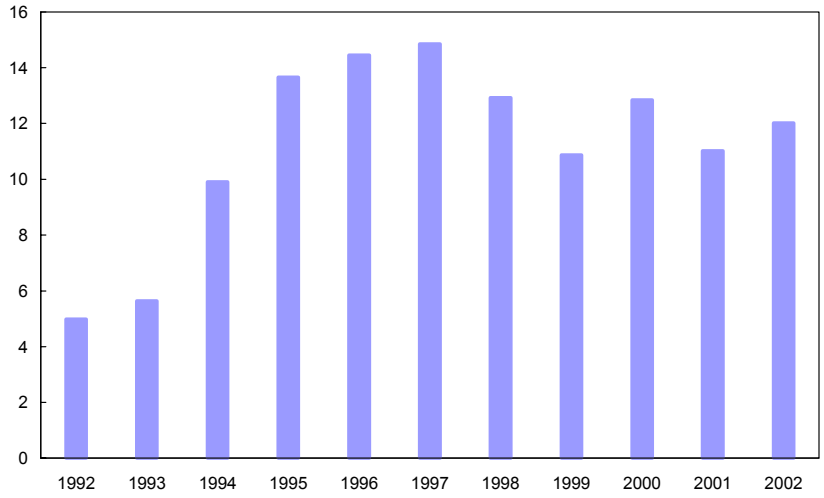
lagged values, Harrison (1996) concludes that the causality between openness and growth is mutual. Baldwin (2003) presents a comprehensive overview of the debate on the relationship between openness and growth, including an extensive discussion of the Rodrik-Rodriguez-critique.

[10] This measure also counters problems originating from the fact that trade-driven price declines in the tradables sector as a result of higher productivity would lead to lower measured openness in case demand for services is inelastic.

[11] In accordance with the concept of "real openness," I define trade openness as the sum of imports and exports divided by GDP, adjusted for PPP. A comparison with openness during the last phase of the Soviet Union is rendered difficult by valuation issues, but crude estimates indicate that openness of the Soviet economy in 1989 was about 8 percent.

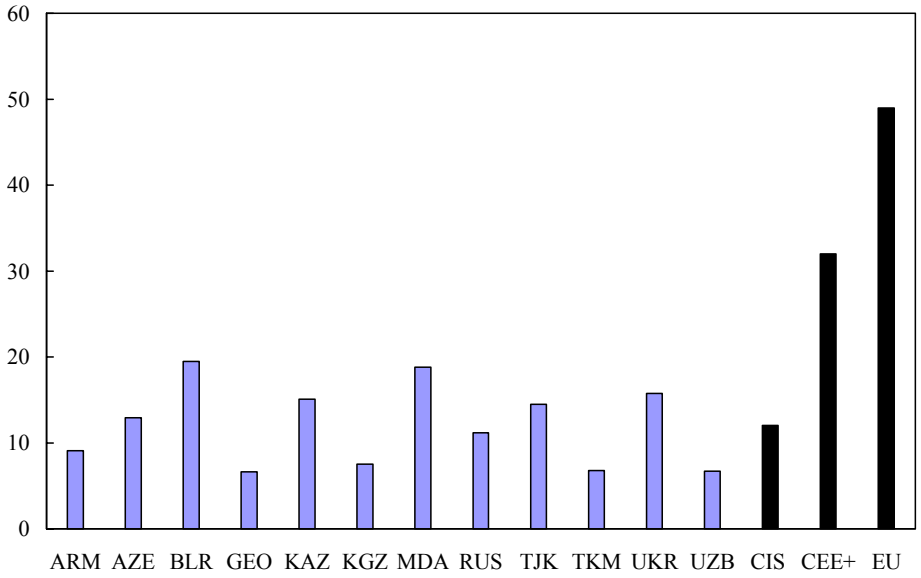
[12] If GDP were not adjusted for PPP, the openness ratio of the CIS countries would reach 50 percent in 2002.

Figure 4. CIS: Openness, 1992–2002
(In percent)



Source: IMF, *Direction of Trade Statistics*, various issues.

Figure 5. International Comparison of Openness, 2002
(In percent)



Source: IMF, *Direction of Trade Statistics*, various issues.

Note: Country abbreviations stand for Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

In the following analysis I compare the trade openness patterns of the CIS countries to those of the CEE+ economies. More specifically, I regress trade openness on population, per-capita-income, and the EBRD transition index. Population serves as the usual proxy for country size with an expected negative sign as, generally, larger countries are more inward oriented than smaller ones as a result of a larger number of domestic trade opportunities.[13] Per capita income, corrected for purchasing power parity, is used as a proxy for the stage of development and economic diversity with an expected positive coefficient sign. The coefficient for per capita income is typically interpreted in terms of intra-industry trade as richer countries tend to trade more differentiated varieties of products. I also include the EBRD transition index as an independent variable, expecting a positive coefficient sign on the assumption that success in macroeconomic and structural reforms correlates with a higher degree of openness. In accordance with standard procedures, the equation is specified in double-log format as

$$Y_i = \beta_o + \beta_1 N_i + \beta_2 G_i + \beta_3 E_i + \varepsilon_i$$

with

Y = trade openness ratio
N = population
G = GDP per capita, adjusted for PPP
E = EBRD transition index
ε = the error term

I estimate trade openness for the two sub-samples of 13 CEE+ countries and 12 CIS economies. The regression estimates for trade openness of the CEE+ show a close correlation as indicated by high values for the R-squared and F-statistics (Table 5). All coefficients have the expected signs and are significant at the 1-percent level. By contrast, for the sub-sample of CIS economies, the regression estimates are poor (Table 6). The coefficients are not significant and the R-squared and F-statistics indicate a very low correlation. These findings are unsurprising, given the range of factors with an impact on CIS trade (see below, Section IV), which are not captured by this equation.

[13] While most research shows a negative correlation between population size and trade, exceptions exist (Oguledo and Macphee (1994); Brada and Mendez (1983)).

Table 5. Determinants of Openness for the CEE+ Countries

Dependent Variable: OPENCEE
Method: Least Squares
Included observations: 26
White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Probability
C	-2.232035	0.851973	-2.619843	0.0156
POPULATIONCEE	-0.313885	0.023971	-13.094400	0.0000
PPPCAPGDPCEE	0.391923	0.114396	3.426031	0.0024
TEBRDCEE	2.364553	0.435575	5.428582	0.0000
R-squared	0.903909	Mean dependent var		3.472430
Adjusted R-squared	0.890806	S.D. dependent var		0.490193
S.E. of regression	0.161982	Akaike info criterion		-0.662020
Sum squared resid	0.577242	Schwarz criterion		-0.468467
Log likelihood	12.606260	F-statistic		68.983130
		Prob(F-statistic)		0.000000

Table 6. Determinants of Openness for the CIS Countries

Dependent Variable: OPENCIS
Method: Least Squares
Included observations: 24
White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Probability
C	3.905730	1.496478	2.609949	0.0168
POPULATIONCIS	0.047152	0.075683	0.623019	0.5403
PPPCAPGDPCIS	-0.158551	0.183403	-0.864492	0.3976
TEBRDCIS	-0.359325	0.399372	-0.899725	0.3790
R-squared	0.072951	Mean dependent var		2.433239
Adjusted R-squared	-0.066106	S.D. dependent var		0.363826
S.E. of regression	0.375660	Akaike info criterion		1.030745
Sum squared resid	2.822402	Schwarz criterion		1.227087
Log likelihood	-8.368940	F-statistic		0.524613
		Prob(F-statistic)		0.670357

Low trade openness of the CIS countries is often ascribed to the geographical isolation of the economies. Accordingly, distance has to be examined as an independent determinant of trade. My method for analyzing trade as a function of distance is to employ a gravity-type equation, which, in analogy with Newtonian physics, posits that trade between two countries should correlate positively with the size of the two economies and negatively with the distance between them.[14] Distance between two countries is used as a proxy for transport costs and usually measured between capitals.[15] The gravity model has proven very flexible in its ability to incorporate a wide range of specific additional determinants of bilateral trade flows, such as relative prices; proxies for cultural closeness and common history to capture trade related information costs; contiguity; and dummies for landlocked or island countries, and discriminatory trade agreements.[16]

To capture the role of distance as a determinant of trade, I estimate a regression model, which seeks to explain the transition countries' trade with the EU. In accordance with the definition of general openness, I analyze openness vis-à-vis the EU, defined as the sum of exports to and imports from the EU, divided by GDP adjusted for PPP. In line with the openness equation, the model includes as independent variables population; per capita income, corrected for purchasing power parity; and the EBRD transition index. The distance to Frankfurt (Main) is added as a proxy for distance to the EU:[17]

$$Y_{EUI} = \beta_0 + \beta_1 N_i + \beta_2 G_i + \beta_3 E_i + \beta_4 D_i + \varepsilon_i$$

with

Y_{EU} = trade openness ratio vis-à-vis the EU
N = population
G = GDP per capita, adjusted for PPP
E = EBRD transition index
D = distance to Frankfurt
ε = the error term

[14] Theoretical foundations for the gravity model were developed by Anderson (1979), Bergstrand (1985) and (1989); Helpman and Krugman (1985); and Asilis and Rivera-Batiz (1994). Feenstra et al. (2001); Daerdorff (1998); Grossman (1998); and Evenett and Irwin (1996). Recent discussions of the gravity model have emphasized the need for correct econometric specification (Cheng and Wall (2002); Egger (2002); Jensen (2000); Mátyás (1997) and (1998)).

[15] This could result in measurement difficulties as countries comprise numerous gravity centers, and identical distances can cause different costs because of the composition of trade and varying means of transportation (Havrylyshyn and Pritchett (1991); Cheng and Wall (2002)).

[16] Bayoumi and others (2003); Loungani and others (2003); Frankel and Wei (1998); Eichengreen and Irwin (1996); Boisso and Ferrantino (1997); McCallum (1995); Oguledo/Macphee (1994).

[17] See Havrylyshyn/Al-Atrash (1998).

In the empirical work that follows I estimate this equation for the sub-samples consisting of the CEE+ and CIS economies, based on pooled data for 1999 and 2001. For the group of CEE+ countries, the regression results for the model including distance demonstrate a good fit. As shown in Table 7, the coefficient for per capita GDP is significant at the 5 percent confidence level, while the other coefficients are significant at the 1 percent level. In line with regression results for overall openness, the OLS estimate for trade with the EU shows a poor correlation for the sub-sample of CIS economies (Table 8).[18]

Table 7. Determinants of Trade with the EU for the CEE+ Countries

Dependent Variable: OPENEUCEE
Method: Least Squares
Included observations: 26
White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Probability
C	-0.905314	1.061577	-0.852802	0.4034
POPULATIONCEE	-0.271320	0.023921	-11.342440	0.0000
PPPCAPGDPCEE	0.325809	0.116132	2.805511	0.0106
TEBRDCEE	2.295569	0.428156	5.361526	0.0000
DISTANCECEE	-0.195375	0.067078	-2.912650	0.0083

R-squared	0.951508	Mean dependent var	2.947026
Adjusted R-squared	0.942272	S.D. dependent var	0.472253
S.E. of regression	0.113467	Akaike info criterion	-1.343572
Sum squared resid	0.270369	Schwarz criterion	-1.101630
Log likelihood	22.466440	F-statistic	103.016100
		Prob(F-statistic)	0.000000

[18] Model extensions including price variables and dummies for landlocked countries and energy exporters did not yield any consistently significant results.

Table 8. Determinants of Trade with the EU for the CIS Countries

Dependent Variable: OPENEUCIS
Method: Least Squares
Included observations: 24
White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Probability
C	5.277135	2.275016	2.319604	0.0317
POPULATIONCIS	0.081054	0.077785	1.042035	0.3105
PPPCAPGDPCIS	-0.284854	0.192677	-1.478406	0.1557
TEBRDCIS	0.466898	0.363413	1.284759	0.2143
DISTANCECIS	-0.337185	0.162607	-2.073623	0.0520
R-squared	0.298082	Mean dependent var		0.991835
Adjusted R-squared	0.150310	S.D. dependent var		0.470994
S.E. of regression	0.434156	Akaike info criterion		1.352227
Sum squared resid	3.581341	Schwarz criterion		1.597655
Log likelihood	-11.226730	F-statistic		2.017172
		Prob(F-statistic)		0.132777

In the remainder of this section, I estimate the trade with the EU, which the CIS countries could have reached in 2001, if their transition record had been similar to that of the CEE+ countries.[19] While many differences exist between the CIS countries and other transition economies, the CEE+ countries appear to be the most appropriate reference group of countries. Several studies have concluded that the transition economies of Central and Eastern Europe had succeeded in establishing openness ratios and trade patterns in accordance with comparable developed countries already in the early and mid-1990s.[20]

In an out-of-sample simulation,[21] I apply the parameters estimated for the 13 CEE+ countries to the actual data for CIS population, per capita income, and their economies' distance to Frankfurt. With regard to the transition index, I simulate reform achievements comparable to those of the CEE+ countries for the CIS economies. Accordingly, the transition indices for the CIS countries are scaled up to show the same average as the actual transition indices of the CEE+ countries, equal to an increase of 37 percent.

[19] The gravity model has been widely used to project bilateral trade, in both in-sample and out-of-sample simulations. Studies on the potential volume and direction of CEE trade include Wang and Winters (1991); Winters and Wang (1994); Hamilton and Winters (1992); Baldwin (1993) and (1994); Gros/Steinherr (1995); and Byers et al. (2000).

[20] Gros and Gonciarz (1996); Winters and Wang (1994); Wang and Winters (1991); and Hamilton and Winters (1992).

[21] Unlike in-sample estimates, an out-of-sample simulation avoids the econometric problems of interpreting the residual of the estimated equation as the difference between actual and potential trade (Egger (2002)).

The results of this simulation are reported in Table 9, showing a substantial disparity between actual and simulated trade. The CIS countries could have traded US$ 119 bn more with the EU in 2001, equal to 183 percent of their actual trade with the EU and equal to 2.5 percent of overall EU trade. In the case of Georgia, the unrealized trade potential is largely explained by artificially low actual trade due to unrecorded shuttle trade. A substantial part of the Kyrgyz Republic's trade potential remains idle due to trade restrictions by neighboring countries (see below).

Table 9. CIS: Potential Trade with the EU, 2001

	Additional CIS Trade with the EU	
	(In US$m)	(In percent of actual trade)
Armenia	1,828.0	537.6
Azerbaijan	802.0	42.6
Belarus	1,895.8	91.9
Georgia	5,281.0	1,057.1
Kazakhstan	14,275.2	405.3
Kyrgyz Republic	1,917.2	1,114.0
Moldova	1,626.1	438.0
Russia	76,185.1	162.6
Tajikistan	180.8	70.9
Turkmenistan	350.4	92.4
Ukraine	13,326.7	170.0
Uzbekistan	1,740.9	183.2
Total	119,409.2	183.4

IV. Reasons for Lower-Than-Expected Trade

The previous sections have found that CIS countries do not trade "enough" relative to other transition economies even after accounting for the role of distance. The difference between actual and potential trade of the CIS countries can be explained by both regional and country-specific factors, some of which constitute a legacy of the Soviet Union. Key factors are slow progress in transition; severe restrictions to trade, including trade blockades in the Caucasus and Central Asia; geographic and topographic features; weaknesses in physical infrastructure; and corruption and governance problems in customs and transport services. Political tensions among the CIS countries and restrictions to market access in some of the CIS countries' main trading partners add to the difficulties.

The transition record of the CIS countries lags behind that of other transition economies. The European Bank for Reconstruction and Development (EBRD) transition index, which captures the overall reform record of the transition economies, shows very clearly that reforms in the CIS have been less comprehensive than in the CEE+ countries, although all

CIS countries have made progress during 1992–2002.[22] While the average score for the CIS economies was only 2.3, the CEE+ countries reached an average score of 3.2 in 2002.

The lower trade openness ratio of the CIS economies is partly explained by formal and informal trade barriers, established in spite of numerous regional trade agreements and the frequently expressed belief in the benefits of free trade. Formal barriers to trade are captured by the IMF trade restrictiveness index, which takes into account trade taxes and nontariff barriers (Table 10).[23] The average trade restrictiveness index for the CIS countries reached 3.8 in 2002, significantly higher than the average of 2.0 for the CEE+ countries and the Baltics. In Central Asia Kazakhstan, Turkmenistan, and Uzbekistan maintain highly restrictive regimes, with a considerable negative impact also on their neighbors. Tariff barriers play a less significant role as import tariffs have been brought down from an average of 11.0 percent in 1995 to an average of 8.7 percent in 2002, but non-tariff barriers remain important. Some countries impose seasonal tariffs in addition to the ones captured by the index. Several state monopolies for certain exports are maintained in Central Asia. Delayed repayments of VAT refunds to exporters in several CIS countries constitute an additional obstacle to exports. Although a multitude of regional trade agreements have been signed and ratified by CIS countries (Table 11), their overall impact beyond political signaling remains limited.

Table 10. CIS: Trade Restrictiveness, 1997 and 2002

	Average Import Tariff		Trade Restrictiveness Index	
	1997	2002	1997	2002
Armenia	3.7	4.0	1	1
Azerbaijan	10.8 1/	10.8	5	2
Belarus	12.6	12.2	8	8
Georgia	10.6 2/	10.9	5	2
Kazakhstan	13.3	7.8	5	4
Kyrgyz Republic	10.0 2/	5.1	2	1
Moldova	9.4	6.9	1	1
Russia	14.0	10.7	2	5
Tajikistan	8.0 3/	8.0	1	1
Turkmenistan	N.A.	N.A.	7	7
Ukraine	10.0	12.7	5	5
Uzbekistan	29.0	15.3	10	9

Source: IMF.

1/ Data are for 2000.
2/ Data are for 1999.
3/ Data are for 1998.

[22] The EBRD transition index uses a scale of 1 to 4, where 1 stands for "no reforms" and 4 for a developed market economy. It comprises indices for liberalization, stabilization, the financial sector, privatization, enterprises and markets, infrastructure, and social reform.

[23] The index combines a measurement of trade taxes and nontariff barriers. While the level of 1 means no restrictions, the index level of 10 implies pervasive restrictions affecting more than 40 percent of total trade and trade taxes above 20 percent.

Table 11. CIS: Regional Trade Agreements

Multilateral agreements		**Date**	**Member countries**
Asia-Pacific Economic Cooperation (APEC)		11/98	Russia (designate)
Balkan Stability Pact Free Trade Zone		2001	Moldova
Black Sea Economic Co-operation (BSEC)		6/25/1992	Armenia, Azerbaijan, Georgia, Moldova, Russia, Ukraine
Eurasian Economic Community (EAEC) (previously CIS Customs Union, since 1/6/1995)		5/2001	Belarus, Kazakhstan, Kyrgyz Republic, Russia, Tajkistan
Economic Cooperation Organization (ECO)		1992	Azerbaijan, Kazakhstan, Kyrgyz Republic, Tajkistan, Turkmenistan, Uzbekistan
Central Asian Union (CAU)		1994	Kazakhstan, Kyrgyz Republic, Uzbekistan
EU Trade and Economic Cooperation Agreement		7/1/1998	Moldova
		N.A.	Russia
		1998	Turkmenistan
		N.A.	Ukraine
World Trade Organization (WTO)		2/5/2003	Armenia
		6/14/2000	Georgia
		12/20/1998	Kyrgyz Republic
		7/26/2001	Moldova
Applied for membership in WTO		7/97	Azerbaijan
		10/93	Belarus
		2/1996	Kazakhstan
		6/1993	Russia
		7/2001	Tajikistan
		12/93	Ukraine
		12/94	Uzbekistan
Bilateral Agreements			
Country	**Partner**	**Date**	**Type of Agreement**
Armenia	Argentina	N.A.	
	Georgia	11/11/1998	
	Kyrgyz Republic	10/27/1995	Free Trade Area (FTA)
Azerbaijan	Georgia	7/10/1996	
	Kazakhstan	1997	
	Moldova	6/7/1995	
	Russia	1992	
	Turkmenistan	1996	
	Ukraine	1995	
	Uzbekistan	1996	
Belarus	Russia	N.A.	
	Turkmenistan	1/1/2000	FTA
	Ukraine	6/4/1996	FTA
Georgia	Kazakhstan	7/16/1999	
	Russia	5/10/1994	
	Russia	2/11/2000	FTA
	Turkmenistan	1/1/2000	
	Ukraine	6/4/1996	
Kazakhstan	Kyrgyz Republic	11/11/1995	FTA
Kyrgyz Rep.	Moldova	11/21/1996	
	Russia	4/24/1993	
	Ukraine	1/19/1998	
	Uzbekistan	3/20/1998	
Moldova	Romania	N.A.	FTA
	Romania	1/1/1995	
Ukraine	Estonia	3/14/1996	FTA
	Lithuania	N.A.	
	Macedonia	1/2001	FTA
	Latvia	N.A.	FTA
Uzbekistan	Afghanistan	2002	Customs Union

Source: IMF

Even beyond the mere distance from major markets, geographic and topographic features inhibit CIS trade. Geographic isolation of many landlocked CIS countries hinders access to global markets by increasing transportation costs and reducing their attractiveness to foreign investors (Bartlett 2001). In the countries of the Caucasus and Central Asia topographic impediments add to transportation costs. In sharp contrast to the CEE+ countries, the CIS countries, except Russia, do not share a common border with the EU.

The physical infrastructure for both surface transport and energy is generally poor and continues to reflect Soviet planning priorities. The quality of roads is low and deteriorating (Djankov and Freund (2002)), while rail transport to regions outside the CIS is rendered more expensive by gage differences. Despite the construction of several new pipelines, the energy infrastructure largely remains a Soviet legacy, adding to the costs for energy transit and constraining energy trade both within the CIS and between the CIS and other regions (Dodsworth et al. (2002)). Non-transparent and discriminatory restrictions of access to transit pipelines for gas and oil by government dominated companies add to the difficulties. Regulations forcing oil companies to ensure domestic supplies before being granted access to the export market are also imposed.

Lack of good governance and widespread corruption are additional factors that inhibit CIS trade. For the eight CIS countries included in the 2001 and 2002 annual reports of Transparency International, the average Corruption Perceptions Index amounted to 2.7, compared to 4.1 for the 13 CEE+ countries and 7.6 for the EU.[24] Corruption in customs and transport services is widespread throughout the entire region, albeit difficult to quantify. In many CIS countries transportation enterprises face several layers of official and unofficial costs.[25]

Political tensions at the inter- and intrastate level have added to the costs of CIS trade. In Tajikistan and Moldova national consolidation was impeded by ethno-national conflict. Political instability in the Caucasus has put this region at a further disadvantage with regard to trade relations. Below the level of open conflict, the absence of intra-CIS cooperation constitutes an obstacle, in particular with respect to the exploitation of natural resources. In Central Asia, prospects for regional trade are inhibited by regional rivalries.[26]

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[24] On a scale from 1 to 10, 1 implies severe corruption and 10 the absence of corruption. Of the 25 transition countries, Armenia, the Kyrgyz Republic, the Former Yugoslav Republic of Macedonia, Tajikistan, and Turkmenistan are not covered by either the 2001 or 2002 reports of Transparency International. The averages reflect the latest available data.

[25] The Asian Development Bank (ADB) estimates that the costs for taking a truck from Bishkek in the Kyrgyz Republic to Novosibirsk in Russia amount to US$ 1,598 (in addition to costs for the driver and fuel), 82 percent of which go to Kazakhstan. According to ADB the costs for a representative truck on this route could be brought down by 75 percent if only official costs mattered.

[26] In this context, the deliberate destruction of a bridge to the Kyrgyz Republic by the government of Uzbekistan in order to prevent shuttle trade remains an extreme example of government intervention.

Protectionism on the side of potential importers outside the CIS is most pronounced in areas of trade where several CIS countries have the largest comparative advantage. Exports of agricultural products are hindered by the Common Agricultural Policy of the EU and (with the exception of Russia) the absence of country specific sub-quotas for its grain exports from the EU. Despite the partnership and cooperation agreements, which all CIS countries, except Tajikistan, have signed with the EU, CIS access to the EU market is constrained by the absence of trade concessions of the type, which have been granted to several CEE+ countries. Moreover, most CIS countries continue to be classified as nonmarket economies by the EU and the US. CIS metal exports are affected by the increase in U.S. steel tariffs and anti-dumping investigations.

V. Summary and Conclusions

While the newly established countries developed their political independence very rapidly, economic integration following decades of Soviet planning proved more resilient, despite multiple shocks. As a result, the reorientation of trade was less pronounced in the CIS than in other transition economies. Although the share of intra-CIS trade has declined, trade with developed market economies has increased rather slowly. The concentration of export commodities and export markets remains high and has, for some CIS countries, increased.

Trade openness of the CIS increased through 1997, but fell to a lower-level plateau in the aftermath of the 1998 Russian crisis. The comparison with openness ratios of other transition economies shows that the CIS countries continue to lag behind in opening up their economies to trade. Lower than expected CIS openness results from both regional and country-specific factors, including slow progress in transition; restrictions to trade; geographic features; weak infrastructure; governance and corruption problems in customs and transport services; trade blockades; political conflicts; and restrictions to market access by trading partners.

Trade openness could be expected to increase substantially if the CIS countries pursued market-oriented reforms more vigorously, with a likely positive impact on growth. Once financial integration in the CIS has reached the level of more developed countries, a higher level of trade integration would likely also reduce the potential for external shocks. My regression results show that an EBRD transition index in line with the average achieved by the CEE+ countries would correspond to an increase in CIS trade with the EU by 183 percent. Areas of reform that could be expected to have a positive impact on CIS trade include the reduction of official and unofficial trade barriers; improvements to infrastructure in order to reduce the costs of trade; the elimination of corruption in customs and transport services; and closer cooperation at the level of economic policy in order to overcome regional obstacles to trade. Broader participation in the WTO could be expected to enhance trade liberalization in the entire region.[27] Successful market-oriented reforms including

[27] To date only the Kyrgyz Republic, Georgia, Moldova, and Armenia have joined the WTO while all other CIS countries, except Turkmenistan, have applied for membership.

enterprise restructuring could result in a diverse range of competitive export commodities in combination with the development of marketing channels, thereby rendering the CIS economies less vulnerable to shocks and protectionism of trade partners.

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