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SALIENT FEATURES OF TRADE AMONG FORMER
SOVIET UNION REPUBLICS

Facts, Flaws and Findings

by

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**SALIENT FEATURES OF TRADE AMONG FORMER SOVIET UNION REPUBLICS:
Facts, Flaws and Findings***

I. Introduction: Past Intra-Soviet Union Trade Patterns: Obsolete Information or Useful Clues?

Since August 1991 the march of the Soviet Union into disarray has accelerated. Some former Soviet Union republics have declared their independence unilaterally, while others, the Baltic States, have been recognised as new independent members of the International Community. Which institutional and monetary framework of a possible successor of the Union will finally be agreed upon and who the members of a new grouping will be has controversially been discussed in Fall 1991.

In sharp contrast to trends in political disintegration, economic integration is at an overproportionately high level. The joint IMF/World Bank/OECD/EBRD study (in the following cited as IMF report 1991) stresses that in 1988 inter-republican merchandise trade amounted to 21 per cent of GDP and was about four times the size of extra-union exports. For comparison, intra-EC and extra-EC trade in merchandise trade plus services amounted to 14 per cent of GDP only [IMF Report, Vol. 1, p. 193-194].

It goes without saying that in the case of the Soviet economy this share is strongly upward-biased by political interference into resource allocation. The command economy tied the republics to a centrally planned inter-sectoral and inter-industry division of labour thus denying them extra-union sourcing and selling. But even without such a system one could assume that a number of land-locked and geographically remote republics as in Central Asia would have found a natural trading partner in the giant among the republics, that is Russia [Kiss, 1987]. Hence, there is support for the hypothesis that both the command economy and the remoteness and back-

* The author gratefully acknowledges the assistance of Milija Pajevic and Susanne Tobias in getting access to Soviet statistics.

wardness of some republics have given rise to a volume of economic interactions among republics which cannot not rapidly be replaced by new links to OECD countries. As regional trade structures are generally characterised by a certain degree of inertia in Western type economies, stronger trends of inertia can be expected to emerge in economies which lack managerial human capital in general and knowledge of extra-union markets in particular. Thus, sectoral and regional patterns of inter-republican trade are likely to be fairly robust as long as this bottleneck factor is still binding.

As a result, an enquiry into past sectoral and regional patterns of inter-republican trade still seems relevant even if the institutional basis vanishes rapidly. However, such an enquiry faces a number of formidable obstacles, both conceptual and empirical ones, and thus is subject to many qualifications.

To start with, Perestroyka in Soviet statistics [Trem1, 1988] reached trade statistics not earlier than 1990 when for the first time detailed data on inter-republican exports and imports were released for one year, that is 1988 [Belkindas, Sagers 1990, p. 651]. It is assumed that these data are based on the republican input-output tables for 1987. They were not published prior to 1987 though they were computed every five years when the input-output tables were constructed [Trem1, 1989]. Thus neither an analysis of time series nor a comparison of two periods is possible. Enquiries have to rely on a flashlight picture for 1988.

Secondly, figures are disaggregated by intra-union and extra-union exports only. To construct a matrix of bilateral trade flows between individual republics is again not possible.

Thirdly, values of intra-union exports and imports are heavily influenced and distorted by the price structure which does not reflect relative scarcities but political priorities. Consumer goods, for instance, and processed food and beverages have entered trade balances with a high price because of turnover taxes and distribution mark-ups. Taxes and mark-ups are counted as part of the con-

sumption fund of the importing republic. Heavy industries, primary commodities and unprocessed agricultural products, however, are priced at a low level because of subsidies and therefore have a relatively small weight in trade balances. As a consequence, republics specialised in exporting low-price commodities while importing high-price consumer goods show systematically downward-biased trade balances while the opposite holds for the republics specialised in exporting consumer goods and food.

Fourthly, ratios between extra-union and intra-union trade are distorted as well. As far as exports are concerned, extra-union exports are downward-biased in value terms (compared to world market prices) because Soviet republics mostly export primary commodities to third countries (which are priced at a low level). On the other hand, extra-union imports which typically consist of industrial products show a much higher price than the state trade monopoly actually paid for them. Belkindas and Sagers [ibid, p. 639] report that in some cases the ratio between domestic and foreign prices may reach as high as 10 so that foreign imports expressed in domestic prices are strongly overstated. That means that for republics exporting raw commodities to third countries while exporting consumer goods to other republics, the ratio extra-union exports to intra-union exports is systematically too low. Alternatively, if they import consumer goods from extra-union sources and import commodities from other republics, the corresponding import ratio is strongly overstated. A view on the production pattern of individual republics thus allows for roughly tracing the direction of distortions in their trade balances.

Therefore, Chapter II opens the discussion by highlighting the differences between the former republics as far as their integration into the network of intra-union supplies and deliveries is concerned. Chapter III scrutinises sectoral and regional patterns of extra-union and intra-union trade flows in value terms before turning to own estimates of Goskomstat (Central Statistical Authorities of the Soviet Union) on trade balances in world market prices (Chapter IV). Chapter V tries to figure out specialisation profiles of

the major republics in their trade relations with the Union on the basis of traded volumes. In Chapter VI some tentative hypotheses on the major issues of a forthcoming economic union between legally independent republics are derived from past trade patterns as well as from experiences of decolonisation in developing countries.

II. The Openness of former Soviet Republics: Extraordinary Differences at a High Level of Inter-Republican Integration

It is well known that differences in market size and resource endowment between the former republics are extraordinarily high. The range spans from Russia comprising more than three quarter of the territory, more than half of the population and more than 60 per cent of net output¹ to republics like Tadzhikistan, Kirgisia or Armenia with fractions of a percentage point for each indicator.

Table 1 reports estimated shares of intra- and extra-union trade in national income produced (NIP) for 1988. They mirror different degrees of openness of republican economies and also - in the context of socialist planning - of dependence.

¹ The regional disaggregation of industrial output by republics and products is reported in Appendix Table 1. Apart from the strong Russian and Ukrainian position in many products, some interesting specialisation profiles of the former republics emerge. For instance, the Baltic states are highly specialised in consumer durables (i.e. radios, TV sets), while the Caucasian republics have their strongholds in the processing of textile fibres which is known to be relatively labour-intensive from the perspective of developing countries. Belorussia seems to have focused on the production of basic chemicals and chemical products. So has Uzbekistan on the production of vegetable oils. Some patterns appear as typical outcomes of the Socialist inter-industry type of division of labour, such as the fact that in 1988 Uzbekistan accounted for one quarter of the Union production of electric hoists or that Tadzhikistan commanded a relatively large share of production of washing machines, or that Moldavia was specialised on bicycles for adults while Kazakhstan kept the same share in bicycles for children. Much higher rates of concentration of production on a single plant are reported for capital goods. For some products, they approach 100 per cent [Sagers, Heleniak, Dunlop, 1991; Kroll, 1991, p. 145]. To analyse the extremely high degree of specialisation within the Union in all its regional facets more in detail, however, would go beyond the scope of this paper.

Table 1: Estimated Shares of Intra- and Extra-Union Trade in National Income Produced by Individual Former Republics of the Union, 1988 (in per cent)

	Intra-union trade		Extra-union trade		Total trade	
	imports	exports	imports	exports	imports	exports
Russia	17.9	18.0	17.4	8.6	35.3	26.6
Ukraine	35.5	39.1	13.1	6.7	48.6	45.8
Belorussia	54.1	69.5	14.0	6.5	68.1	76.0
Uzbekistan	51.3	43.3	8.2	7.4	59.5	50.5
Kazakhstan	50.9	31.0	10.2	3.1	61.0	34.1
Georgia	51.2	54.0	12.5	3.9	63.7	57.9
Azerbaijan	39.1	58.3	13.0	3.9	52.0	62.2
Lithuania	70.1	61.0	14.0	5.9	84.1	66.9
Moldavia	64.8	62.3	14.2	3.3	79.0	65.6
Latvia	66.2	64.5	13.7	5.4	79.9	69.9
Kirghizia	59.4	50.7	15.5	1.2	74.9	51.9
Tadzhikistan	60.4	40.5	9.4	6.7	69.8	47.2
Armenia	69.3	63.5	14.8	1.4	84.1	64.9
Turkmenia	52.9	50.8	9.2	5.2	6.1	56.0
Estonia	74.3	66.2	16.1	6.0	90.5	72.2
USSR	29.3	29.3	15.5	7.5	44.8	36.8

Source: Calculated from Belkindas/Sagers, 1990, Table 2 and Vestnik Statistiki, No. 3, 1990.

The main messages to be drawn from Table 1 can be summarised as follows:

First, the openness is very high for the smaller former republics. It approaches 80-90 per cent for the Baltic states and Moldavia and exceed, except for the two large republics Russia and Ukraine, the 50 per cent level in each republic. This share is even downward-biased for those republics which import administratively underpriced commodities.

Secondly, the export share in total value added is again the highest for the Baltic states and the lowest for Russia followed - somewhat surprisingly - by Kazakhstan. As concerns imports one can expect a bias in this share, this time in the upward direction, if overpriced consumer goods enter into the export basket. As will be shown below, this bias is relevant for the Baltic States in particular.

Thirdly, in general intra-union trade exceeds extra-union trade the more, the more the former republics are geographically remote from the traditional trading partners outside the Union, the European countries of the former Council for Mutual Economic Assistance (CMEA). But apparently economic distance as a catch-all variable for all transport-related transaction costs has not been the only determinant of managed trade between the Eastern European countries and the former republics. While Russia displays the highest extra-union export share, the remote republics of Uzbekistan and Tadzhikistan follow next. Probably, political considerations may have easily overridden arguments of cost advantages² so that even costs of long-distance transport from Central Asia to Eastern Europe did not serve as a strong impediment to extra-union exports.

Fourthly, the gap between extra-union imports and exports is much larger than in intra-union trade. This suggests that in the CMEA framework the Eastern European countries with their relatively strong industrial base served as important sources for the former republics while the latter primarily had to satisfy demand coming from other republics in the Union. Thus, unlike CMEA countries like Hungary, Poland and the GDR, all former republics of the Union were more or less isolated from trade relations outside the Union. In fact, the intra-union division of labour has been a case sui generis within the larger context of the intra-CMEA division of labour. If

² Yet, exports of the Central Asian republics to the non-European members of the CMEA, that is Cuba, Mongolei and Vietnam, or to Socialist countries in the developing world (for instance, Ethiopia, Afghanistan, Angola, Laos, Mozambique, PR Jemen) would also explain relatively high export shares.

the consequences of such "splendid isolation" are extrapolated to the post-1991 situation of widely independent entities exposed to world market prices, a number of bottlenecks arise which are lacking (or at least are not as serious) in Eastern European countries. For instance, knowledge of non-Soviet markets can be expected to be very limited in many former republics. Barriers of communication are formidable and product standards and norms in the industrial sector are likely to be almost entirely Union-specific.

III. Sectoral Patterns of Intra-and Extra-Union Trade of Former Republics

Raw data on 1988 trade flows in domestic prices are reported in Appendix Table 2. In general, statistical discrepancies arise with respect to the sums of individual sector balances over all republics. They should be zero but emerge to be positive and negative. Two explanations are possible. First, there is wrong accounting (the same product is grouped in different sectors of the exporting and importing republic) and second, deviations are likely between producer's prices in which the input-output tables are denominated and purchaser's prices for the trade data [Belkindas, Sagers, pp. 648-659].

Because of the price distortions, no emphasis should be given to interpret trade balances. They are economically meaningless. For instance, it is obviously due to underpriced exports of raw materials why all republics run a deficit in extra-union trade and why most republics show a deficit in total trade too. Balances of individual republics are artificially upward-biased if small quantities of consumer goods' exports are given an overproportionate weight because of high prices. Sectoral structures in inter-republican trade are also meaningless as ratios between intra-union agricultural and industrial exports and imports are downward-biased. This explains why the smallest share of industrial exports (including energy products) in total intra-union exports of individual republics is still higher than 81 per cent (in the case of Kazakhstan). For the majority of the republics this share amounts to more than 90 per cent.

Hence, the only useful findings can be derived from industry-wise specialisation profiles because in each industry flaws of wrong prices can be assumed as systematic.

Here the following results emerge for intra-union trade. First, Russia is the major exporter of forestry products (72 per cent of total intra-union exports), oil and gas (almost 60 per cent) and non-ferrous metals (53 per cent). It ranges next to the Ukraine as the largest exporter of ferrous metals (iron and steel).

Second, Russia and Ukraine are dominant hosts of a large number of industries. They account for 86 per cent of total intra-union exports of iron and steel, almost 70 per cent of exports of non-ferrous metals, 68 per cent of construction materials and 65 per cent of coal exports.

Thirdly, Russia is the major net importer of agricultural products (66 per cent of total intra-union agricultural imports and only 5 per cent of exports) and nicely complements to the Ukrainian pattern of large agricultural exports (27 per cent). In this respect the two republics are almost ideal trading partners.

Fourthly, Belorussia's relative export stronghold is in chemicals and petrochemicals and consumer industries. It depends on intra-union imports of energy products, iron, steel and non-ferrous metals.

Fifthly, the Central Asian republics (Uzbekistan, Kirghizia, Tadzhikistan and Turkmenia) are major net exporters of electric power (23 per cent of intra-union exports) and to a smaller extent of non-ferrous metals.

Sixthly, among the smaller republics the most distinctive specialisation profile arises for Kazakhstan. Viewed against its total share in intra-union exports (less than 5 per cent), its contribution to intra-union exports of coal (30 per cent), agricultural products (25 per cent) and also electric power (12 per cent) de-

serves attention. So does the fact that in two of the three industries (electric power and coal) it is a strong importer too. Presumably, there are locational factors (border trade with different neighbouring republics) which have been instrumental to this sort of two-way trade. Its import pattern is outstanding as well. In 1988 the republic absorbed 19 per cent of intra-union imports of electric power, 17 per cent of fuels, 14 per cent of forestry products and 11 per cent of construction materials, compared to a share in total USSR national income produced of only 4.3 per cent.

Seventhly, the three Caucasian republics (Armenia, Georgia and Azerbaijan) add overproportionately to intra-union food exports (about 20 per cent) and in the case of Azerbaijan to oil and gas exports (8 per cent).

Eighthly, Moldavia ranges among the least commodity-abundant republics with an extraordinarily high coal consumption covered through intra-union imports (almost 14 per cent of total coal imports). Given its dependence on commodity imports and specialisation on industrial exports, an adjustment to world market prices would certainly lead to a large deterioration of the Moldavian trade balance thus signalling a need of exchange rate depreciation in a Western type economy.

Finally, the three Baltic states reveal similar sectoral patterns as Moldavia. They are resource-poor and net exporters of consumer industries and food products. Unlike Moldavia they are important exporters of electric power (almost 22 per cent of intra-union exports) but depend on imports of oil, gas and coal as major inputs of industrial production including electric power.

Extra-union trade has been much more concentrated on few republics than intra-union trade. Interestingly enough, Russia has kept a dominant position in extra-union exports ranging from 95 per cent of extra-union exports in forestry products to 37 per cent in consumer industries (70 per cent on average for all products). Except for electric power and the quantitatively irrelevant sector "other

fuels", Russia tops the list of all republics exporting externally in all but one sector (ferrous metals). In the latter sector it ranges next to the Ukraine which is the second-largest extra-union exporter. In 1988 the two republics accounted for 85 per cent of all extra-union exports of former USSR republics.

Outliers as far as overproportionate extra-union exports of other republics are concerned are Uzbekistan in consumer industries (33 per cent of extra-union exports), Kazakhstan in non-ferrous metals (14 per cent) and Moldavia in electric power (13 per cent).

To summarise, if- under the current structure of production - we assume primary commodities to be the most valuable assets of individual republics and industrial products to become uncompetitive in the short run after the opening of markets and adjusting to international prices, only two republics reveal a promising profile, that is Russia and Ukraine. In addition, the excellent agricultural base makes Ukraine a natural trading partner of Russia and the Baltic states. Next to the two republics range Kazakhstan with its resource abundance in agriculture and coal and Azerbaijan with its petrobase.

The profiles of the other republics are more difficult to assess as far as their potential for export earnings is concerned. They rely much more on industrial products which are overpriced and probably designed for special purposes only (for instance, for military purposes). To the extent that such products absorb human capital the smaller republics would be well-advised to prevent high-skilled workers from migrating to the large resource-abundant republics.

IV. Inter-Republican Trade in World Market Prices

In 1990, Goskomstat published own estimates on changes in balances of total republican trade (including extra-union trade) if instead of domestic prices world market prices would have been applied to 1988 trade volumes. Unfortunately, no definition of world market prices is given. Nor is there a distinction between intra-

Table 2: Republican Trade Balance in Domestic and World Market Prices, 1988
(in Mill. Rubles)

Former republic	Imports incl. extra-union imports		Exports incl. extra-union imports		Trade balance	
	domestic prices	world market prices	domestic prices	world market prices	domestic prices	world market prices
Russia	135.86	101.9	102.54	132.7	-33.32	30.8
Ukraine	49.86	47.4	46.94	44.5	-2.92	-2.9
Belorussia	17.84	18.5	19.92	16.4	2.08	-2.1
Uzbekistan	12.32	10.5	10.49	8.0	-1.83	-2.5
Kazakhstan	16.4	15.6	9.1	9.0	-7.3	-6.6
Georgia	6.49	5.3	5.9	3.4	-0.59	-1.9
Azerbaijan	5.7	5.1	6.8	4.6	1.1	-0.5
Lithuania	7.49	7.8	5.96	4.1	-1.53	-3.7
Moldavia	6.1	5.1	5.06	2.5	-1.04	-2.6
Latvia	5.6	5.0	4.9	3.7	-0.7	-1.3
Kirghizia	3.77	3.2	2.56	2.1	-1.21	-1.1
Tadzhikistan	3.49	2.8	2.33	1.7	-1.16	-1.1
Armenia	4.88	3.6	3.76	2.2	-1.12	-1.4
Turkmenia	2.9	2.4	2.6	2.4	-0.3	-
Estonia	3.7	3.2	3.0	1.9	-0.7	-1.3

Source: Vestnik Statistiki, No. 4, 1990.

union and extra-union trade. Exchange rate effects and supply and demand responses are ruled out. Thus, the results are sweeping but point into the expected direction (Table 2).

For those republics which are specialised in commodity exports, export prices would rise while the prices of their imports of industrial products would decline. This is equivalent to a currency appreciation.

On the other hand, the exporters of industrial goods among the republics would have to experience a decline of the export prices while their imports of commodities would become more expensive. Hence, this would be equivalent to a currency depreciation. The latter group would therefore be in the same position as the smaller Eastern European countries after the transition to world market prices in their trade with the USSR in 1991.

Table 2 yields that only Russia would enjoy an increase in exports (in value terms) because of its clear profile of specialisation in commodities whereas for all other republics the balance of rising prices for their commodity exports and declining prices for their industrial goods' imports would be negative. On balance, their export earnings would decline.

The pattern on the import side is widely equivalent to exports: Russia would enjoy a sizeable cut in its import bill by 25 per cent. So would other republics except Belorussia and Lithuania whose imports would rise slightly.

The essential message of accounting trade flows in world market prices is that all republics except Russia (and Turkmenia which shows a zero balance) would face a trade deficit while Russia would become a large creditor to all of them. (See for the Estonian case the detailed estimates of Brown and Belkindas [1990]). How large deficits are and how much they differ among the republics emerges from a comparison to national income produced (NIP) of the various republics. Admittedly, this comparison is flawed as NIP should be subject to accounting in world market prices too. Therefore, the differences rather than the magnitude of deficits are worth mentioning. The range of deficits relative to NIP stretches from 2.8 per cent for the Ukraine to 4.5 per cent for Azerbaijan, 8.0 per cent for Belorussia, 31.7 per cent for Estonia, 33.8 per cent for Moldavia and finally 41.6 per cent for Lithuania.³ Some of these shares are certainly beyond those of many developing countries even

³ Figures for NIP are drawn from Belkindas/Sagers, 1990, p. 634. They are partly based on estimates.

if different accounting is taken into consideration.⁴

Such differences give rise to some hypotheses concerning monetary integration in a post-1991 union. In fact, they signal considerable problems which are likely to arise from a monetary union to be set up by independent republics. Unless surplus republics concede to transfer financial flows to deficit countries (or persuade an external donor to do so), a monetary union encompassing all former fifteen republics would be suboptimal in size and probably break. The divergences in resource endowment and level of development indicate a demand for frequent exchange rate adjustments which cannot be met in a monetary union. Instead, deficit countries should be entitled to autonomously lower the price of their factors of production denominated in the currency of the surplus country Russia in order to stimulate their exports and import-competing domestic industries.

To put it differently, a lack of republican exchange rate policies as a tool of price adjustment and structural change would seriously constrain other policies of the republics, such as wage policies and fiscal policies. Under world market prices, fixed nominal exchange rates between Russia and other republics, and a lack of financial redistribution between Russia and the deficit republics, Russia would soon accumulate non-performing debts from the other republics in its portfolio. Such claims upon the income of the other republics could only be paid in kind, that is by low-quality and overpriced industrial goods exports from the republics to Russia. Such exports would have to exceed Russian exports in order to reduce debts in real terms. Unless Russia would be prepared to implement such a real transfer, it would stop exporting to the republics and instead export to the rest of the world. Such a shift would be relatively easy given the Russian export focus on homogeneous commodities. The effects of being cut off from Russian supply of commodities would be serious for the other republics, at least in the short run.

⁴ A developing country with a chronically high trade deficit like Egypt does not exceed trade deficit-GDP shares of 15 per cent.

V. Inter-Republican Trade Volumes for Individual Products

The rapid process of economic disintegration in the USSR after the events of August 1991 has casted a flash light on strong economic dependencies between the republics. For instance, food security is threatened if agricultural surplus republics should cease to export agricultural goods to other republics. Shortages in private and industrial production would emerge if coal mining republics would unilaterally cut their deliveries. Future harvests would be endangered if intra-union exports of inorganic fertilisers would be reduced. In a centrally planned system any external shock injected into the sophisticated and rigid chain of mutual supplies and deliveries immediately causes shock waves and repercussions for the entire system as alternative supply is not available at short notice.

Table 3 lists inter-republican deliveries in six essential non-agricultural products, that is coal, ferrous metal products, timber, cement, paper and inorganic fertilisers, in order to identify strategically strong and weak positions of individual republics.

To start with coal, it has increasingly been replaced in recent years by gas, nuclear power and oil as the major sources of energy consumption but still accounts for almost 20 per cent of total primary energy requirements [IMF Report, Vol. 3, p. 181].

Coal contributes primarily to electric power generation (40 per cent of coal consumption) and also to iron and steel and non-ferrous metal industries (20-25 per cent) as well as the household-municipal sector (about 20 per cent). Any shortages in coal deliveries from coal-mining republics to the consuming republics would therefore affect exports of electric power from those republics which have no resource base but which keep net export positions in secondary energy generation (for instance, Lithuania and Estonia as shown below).

As concerns the supply position of individual republics, there has been a shift of production to Eastern republics (e.g. Kazakhstan) in recent years followed but slowly by similar shifts of con-

Table 3: Inter-Republican Trade Volumes in Important Industrial Imports, 1988

Former republic	Imports incl. extra-union imports		Intra-union exports		Intra-union imports		Intra-union exports		Intra-union imports		Intra-union exports		Intra-union imports		Intra-union exports	
	Coal (1000 t)		Ferrous metal products (1000 t)		Timber (1000 m ³)		Cement (1000 t)		Paper (1000 t)		Inorganic fertilisers (1000 t)					
Russia	59454	49182	19296	17323	282	41269	1738	5736	278	1884	1557	5922				
Ukraine	21186	25745	6519	21776	9288	80	861	3277	706	156	2324	1109				
Belorussia	3333	0	2892	432	590	143	2899	9.9	202	110	710	5058				
Uzbekistan	3742	967	1608	707	1771	0	825	278	109	3.1	367	793				
Kazakhstan	14063	58842	2751	3646	2836	0	955	1317	138	0.5	556	1495				
Georgia	881	419	763	620	762	0	1262	0	76	4.2	151	81				
Azerbaijan	262	0	991	86	488	0	805	5.4	55	0	154	244				
Lithuania	1720	0	780	0	824	2.2	36.6	1325	64	102	496	281				
Moldavia	5691	0	356	530	773	0	40	578	65	0	238	0				
Latvia	1270	0	902	699	521	50	553	106	39.1	122	398	83				
Kirghizia	2833	1888	452	0	545	0	97	71	28.4	0	195	0				
Tadzhikistan	765	349	315	0	413	0	457	133	26.7	0	256	40.6				
Armenia	645	0	492	0	367	0	37.6	8.8	31	10.4	100	7				
Turkmenia	727	0	224	0	221	0	197	56	16.4	0	185	45.6				
Estonia	445	0	415	0	509	72	9.4	280	30.6	44.6	161	141				

Source: Table 2.

sumption as a result of the development of coal-fired mine-mouth power plants in the same republics [ibid, p. 192]. Yet, as major consumption centres are still in the Western republics and as these centres are technically oriented to consume Western coal (from the Ukraine, for instance), two problems arose. First, power plants in the West had to be converted technically in order to be able to use Eastern coal which differs from Western coal, and secondly, long-distance coal transport through the badly maintained railroad network caused traffic jams and breakdowns.

In 1988, all republics imported coal from each other plus from Eastern European countries while only three of them accounted for 97 per cent of intra-union exports (Table 3).⁵

The largest net exporter is Kazakhstan which in 1988 exported more than 40 per cent of its total production to the rest of the Union. Russia and the Ukraine are the two other large exporting republics which, unlike Kazakhstan, have a much higher domestic demand for coal as the import figures witness. Also, their intra-union export shares in domestic production (12 per cent and 14 per cent, respectively) are much lower than that of Kazakhstan. Eight republics do not export coal at all and according to Sagers [1990, p. 298] fully depend on imports as no domestic resource base is available.

Should these republics be cut off from intra-union imports (because of a number of reasons) and instead had to buy coal from world markets, the import bill would be considerably higher than the net import balances in Rubles arising from Appendix Table 2.

⁵ Note that in Table 3 imports of coal include extra-union imports (about 12 mill. metric tons from Eastern Europe) while exports exclude extra-union deliveries. However, the USSR did export coal outside the union (in 1988/89 some 40 mill. metric tons), half of which went to Eastern Europe and the other half to OECD countries, primarily to Japan. Total export volumes in Table 3 are therefore incomplete.

This is suggested by the following comparison for 1988 import volumes:

	Actual net import balance for coal in mill. Rubles	Estimated import bill for coal in mill. Rubles under world market prices ^a
Belorussia	71.9	879.9
Azerbaijan	6.9	69.2
Lithuania	55.1	454.1
Moldavia	136.3	1502.4
Latvia	27.1	335.3
Armenia	16.9	170.3
Turkmenia	6.6	191.9
Estonia	10.6	117.5

^a Under the assumption of inelastic demand, a world market price for power plant-suited coal of 44 US\$/t (cif Northwest Europe) and a market exchange rate of 6 Rubles/US-\$ which is equivalent to ten times the official rate valid in 1988. This equivalence factor has been taken from the so-called special rate (basically a tourist rate) which was introduced in November 1989 for the first time to approximate market-determined exchange rates or black market rates and which was set at ten times the official rate [IMF Report, p. 427].

This scenario which disregards the impact of transport costs on the import bill results in enormous hikes of the republican coal bills which on average would be ten times higher than the value of intra-union imports. In absolute terms, Moldavia and Belorussia would have to shoulder the largest part of the burden followed by the Baltic states while in relative terms Turkmenia ranks first.

As already mentioned, shortages in access to coal would have second-round negative effects on the industrial capacity of many republics, for instance on the capacity of the Baltic States to sell excess electric power to the other republics.

An even stronger inter-industry division of labour than in coal exists in timber. In 1988, almost the entire volume of timber ex-

ports came from Russia while the other republics were net importers.⁶

In the other four groups and (products, respectively) some relatively outstanding profiles of export specialisation emerge for the smaller republics, too. This holds for Belorussia and Kazakhstan in exporting inorganic fertilisers, for Moldavia, Estonia, and Lithuania in cement, for Latvia in paper and to some extent for Moldavia in ferrous metal products. Contrary to these republics, both the Central Asian republics and the Caucasian republics are net importers in almost all strategy items (except for oil and gas from Azerbaijan).

In total, Table 3 again shows Russia, Ukraine and Kazakhstan to be key sources for important industrial inputs processed throughout the Soviet Union. These inputs are not only valuable in terms of vertical linkages between the republics. In the short run, they are also much more fungible on world markets than the industrial goods available from the smaller republics. The three large republics are thus very likely to enjoy an improvement of their income terms of trade (that is, their capacity to import from hard currency areas) vis-à-vis the other republics once the former Union should enter into price reforms and open its markets.

The question remains whether the handicapped republics still have an asset in a trading bloc with Russia in terms of agricultural surpluses.

⁶ Again, a statistical inconsistency arises. Goskomstat reports these figures for intra-union trade only. Thus, imports and exports should be balanced. This is not the case. Russian exports exceed intra-union imports of the other republics by far. As it is unlikely that traded volumes in an individual item are differently categorised by importing and exporting republics, it is the possibility that extra-union trade is included in Russian exports cannot be ruled out.

Table 4 provides a breakdown of agricultural and consumer goods exported by and imported from individual republics in 1988. Many goods are perishable and thus face natural barriers to long-distance transport within the Union while others are more durable or even processed.

To concentrate on the latter group, some smaller republics indeed appear as important agricultural surplus areas for the deficit areas. The largest net importing republic is Russia which in 1988 absorbed almost two third of the Union agricultural imports but contributed to less than 17 per cent to exports. Not surprisingly, among the net exporters the Ukraine has kept strong positions in many items, for instance in sugar (almost 80 per cent of union exports), eggs and egg products (65 per cent), canned vegetables and bakery products (each 45 per cent).

Among the smaller republics Belorussia in potatoes (54 per cent), Uzbekistan in vegetables (almost 30 per cent), vegetables oils (26 per cent) and tomato products (32 per cent), Moldavia in fruit and canned food (between 25 and 34 per cent), Lithuania in dairy products (19 per cent) and Georgia in canned fruits (18 per cent) add overproportionately to satisfying demand in other republics.

To exhaust the agricultural potential of the Southern European and Southern Asian republics of the Union, free access to primary energy and fertilisers from Russia, Belorussia, Ukraine and Kazakhstan is required, not to speak of the institutional essentials of private property rights and price reform. Should these interdependencies be interrupted as a result of political separatism or economic decay, the alternatives for those republics which rely upon agricultural exports appear to be gloomier than those for commodity-exporting republics. Absorptive OECD markets outside the Union are difficult to contest because of agricultural protectionism and domestic excess supply. Other markets which are neighboured (Romania, Turkey, Iran and Pakistan) are either not absorptive in terms of purchasing power or suffer from hard currency shortages (see as a proof the failure of agreements on expanding mutual trade between Turkey, Iran and Pakistan [Langhammer, Hiemenz, 1990, pp. 52-54]).

Table 4: Trade Balance of Former Soviet Republics in Agricultural and Industrial Products, 1988, in percent of total Union Trade^a

	Russia		Ukraine		Belorussia		Uzbekistan		Kazakhstan	
	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports
Food products (except alcoholic beverages) in value terms	65.8	16.7	4.4	32.8	2.9	8.1	6.1	4.0	4.0	3.7
of which individual products in volume terms										
Farina	26.0	64.9	14.8	8.6	13.2	3.3	4.3	2.0	4.1	17.5
Flour	28.5	44.7	2.3	22.5	0.1	6.4	42.1	0.8	0.7	10.3
Vegetables	81.8	1.1	4.2	21.3	7.5	0.5	0.1	29.7	1.5	4.4
Potatoes	72.0	18.3	0.5	10.4	0.1	54.5	14.7	0.6	0.1	1.8
Fruits	88.3	2.3	1.9	14.7	4.2	0.0	0.0	20.7	1.3	0.3
Canned vegetables	84.2	-	0.6	45.3	1.3	4.1	0.1	6.3	8.5	-
Canned fruits	84.5	-	2.8	5.0	2.0	1.1	0.0	11.0	6.6	-
Tomato products	73.0	-	1.1	8.0	5.9	0.3	0.0	31.9	10.8	-
Dairy products	59.5	5.9	1.3	27.9	0.0	30.4	8.8	0.0	2.4	0.4
Meat products	75.7	4.4	1.3	31.3	0.5	23.2	7.6	0.0	0.5	12.3
Fish	45.5	54.9	28.2	20.5	7.1	0.1	3.3	0.1	4.6	0.2
Egg products	87.2	15.4	0.4	64.5	0.3	3.8	3.3	-	0.2	5.1
Sugar	60.4	7.7	-	79.5	3.9	-	9.0	-	6.9	0.8
Vegetable oils	65.7	7.3	7.8	30.9	6.1	2.6	0.0	26.2	5.9	3.9
Bakery products	58.2	3.9	0.3	45.7	0.2	8.0	15.5	0.2	10.0	0.3
Total non-food products (in value terms)	42.0	42.7	17.0	12.2	4.6	11.0	7.2	2.6	8.7	1.3
Non-food products except light industries	33.3	48.2	19.1	15.8	5.3	11.2	9.5	2.2	9.4	0.5
Light industries of which	49.8	35.9	15.1	7.7	3.9	10.9	5.2	3.2	8.0	2.4
Fabrics (in volume terms)	15.4	58.2	32.7	4.8	6.1	4.4	9.4	6.1	10.0	2.1
Garments (in value terms)	62.7	4.6	5.5	9.0	3.6	11.4	3.1	4.3	10.1	0.5
Underwear (in volume terms)	70.1	2.2	8.0	0.8	1.6	18.6	3.1	1.5	6.1	0.1
Leather footwear (in volume terms)	55.2	4.2	6.8	27.0	2.2	11.7	8.5	0.1	11.1	0.7
Furniture (in value terms)	42.3	20.4	16.4	15.1	2.3	18.2	6.5	-	12.2	0.4
Cars (in units)	4.4	86.4	28.4	13.6	8.7	-	18.5	-	10.4	-
Commodities for light industries (in volume terms) of which										
Wool	32.9	4.0	15.4	3.2	18.8	3.0	1.4	4.0	0.4	36.6
Cotton fibres	75.9	-	12.0	-	1.6	-	0.2	59.7	1.5	1.9
Cotton yarn	3.4	41.4	35.5	3.4	11.7	1.4	2.1	17.9	0.7	7.9
Woolen yarn	4.9	41.3	2.2	16.3	2.7	12.0	13.0	0.0	1.6	9.8

to be continued...

Table 4 continued

	Georgia		Azerbaijan		Lithuania		Moldavia		Latvia	
	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports
Food products (except alcoholic beverages) in value terms	3.1	8.5	3.4	3.1	1.0	5.4	0.7	6.0	0.8	3.7
of which individual products in volume terms										
Farina	3.5	-	5.7	0.1	3.3	-	7.4	0.0	2.1	0.4
Flour	3.8	0.1	3.9	0.1	1.0	2.7	-	1.7	0.4	3.3
Vegetables	0.8	1.5	0.2	13.2	0.8	0.9	0.3	11.9	1.0	0.3
Potatoes	1.1	5.2	2.3	0.9	0.9	4.1	2.4	0.0	0.3	0.8
Fruits	0.0	7.6	0.1	12.8	1.8	0.2	0.2	25.0	1.2	-
Canned vegetables	0.1	0.4	0.6	2.1	1.0	2.9	0.0	30.4	1.0	2.0
Canned fruits	0.0	17.8	0.0	16.5	1.3	0.5	0.1	33.7	1.3	0.2
Tomato products	0.0	1.5	-	9.4	3.0	0.0	-	33.9	3.4	0.2
Dairy products	7.7	0.1	7.9	-	0.0	18.5	0.1	1.5	0.0	8.4
Meat products	3.5	-	3.1	-	0.1	12.4	0.1	5.4	0.1	5.5
Fish	2.1	2.8	1.6	0.0	1.1	8.2	2.1	0.0	0.0	4.4
Egg products	1.2	0.9	4.9	-	-	2.4	-	4.3	0.0	1.0
Sugar	4.1	-	6.0	-	0.2	0.9	0.2	3.8	0.3	2.0
Vegetable oils	3.2	-	1.0	1.4	2.4	-	0.0	11.4	2.4	1.4
Bakery products	0.1	6.4	0.2	12.1	0.3	8.0	0.3	4.4	0.1	1.4
Total non-food products (in value terms)	3.0	3.5	2.6	3.3	2.0	5.1	2.5	2.9	1.8	4.5
Non-food products except light industries	3.7	2.0	2.9	2.8	2.4	4.4	2.9	1.8	1.9	5.0
Light industries of which	2.3	5.3	2.3	3.8	1.7	5.9	2.2	4.1	1.8	3.9
Fabrics (in volume terms)	3.5	2.0	5.4	2.9	1.8	2.6	2.6	2.8	1.7	1.4
Garments (in value terms)	0.9	10.9	0.9	8.4	2.7	4.0	1.9	8.5	2.0	1.9
Underwear (in volume terms)	1.3	13.2	0.4	3.4	0.8	11.7	0.7	8.5	1.5	6.7
Leather footwear (in volume terms)	2.2	9.8	1.2	11.5	1.4	2.5	1.3	7.0	1.5	3.9
Furniture (in value terms)	4.7	1.2	2.5	1.9	1.5	11.3	1.6	2.1	0.6	14.3
Cars (in units)	4.3	-	3.0	-	4.2	-	4.0	-	2.6	-
Commodities for light industries (in volume terms) of which										
Wool	1.5	22.0	1.2	8.6	9.6	0.2	1.4	-	8.0	0.0
Cotton fibres	1.6	-	0.1	4.6	0.7	-	1.8	-	0.4	-
Cotton yarn	3.8	0.7	2.4	5.9	1.0	3.8	8.6	0.3	13.4	0.3
Woolen yarn	6.5	0.5	7.1	0.5	23.4	0.0	9.8	0.0	4.3	2.7

continued...

Table 4 continued

	Kirghizia		Tadzhikistan		Armenia		Turkmenia		Estonia	
	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports
Food products (except alcoholic beverages) in value terms	1.1	1.7	1.6	0.8	2.5	0.9	1.6	1.4	0.9	3.2
of which individual products in volume terms										
Farina	5.3	2.3	5.5	0.0	2.3	0.7	1.5	-	1.0	0.1
Flour	0.6	0.6	2.6	1.1	0.7	3.8	12.4	-	0.8	1.9
Vegetables	0.1	6.4	0.1	3.4	0.7	0.4	0.1	5.0	0.8	0.1
Potatoes	1.9	0.4	0.4	-	0.7	0.8	2.4	-	0.2	2.2
Fruits	0.0	2.3	-	7.0	0.2	1.6	0.2	5.4	0.7	-
Canned vegetables	0.4	0.2	0.3	3.6	0.2	2.5	1.0	-	0.7	0.1
Canned fruits	0.1	0.3	-	5.3	-	8.5	0.6	0.1	0.6	0.0
Tomato products	0.1	1.0	-	9.0	-	4.6	0.7	0.0	2.1	-
Dairy products	0.5	0.0	2.0	-	7.3	0.2	2.2	-	0.0	6.6
Meat products	0.4	1.3	1.7	0.0	2.9	-	2.3	-	0.1	4.2
Fish	1.1	-	0.6	0.0	0.8	-	0.9	2.2	1.0	6.5
Egg products	0.3	0.3	0.3	0.1	0.5	0.8	1.4	-	-	1.4
Sugar	0.5	5.3	2.7	0.0	2.2	-	1.6	-	1.9	-
Vegetable oils	3.2	0.7	0.0	1.2	0.9	-	0.0	13.1	1.4	-
Bakery products	3.1	-	4.2	0.2	0.1	3.5	7.5	0.1	0.1	5.8
Total non-food products (in value terms)	2.2	1.3	1.6	1.9	1.6	4.3	2.1	0.3	1.1	3.1
Non-food products except light industries	2.4	1.3	1.5	1.7	1.7	0.7	2.5	0.1	1.4	2.3
Light industries of which	2.1	1.3	1.7	2.1	1.5	8.8	1.7	0.5	0.8	4.2
Fabrics (in volume terms)	2.4	1.9	2.3	2.9	3.4	2.1	2.5	0.7	0.8	5.1
Garments (in value terms)	2.8	0.9	1.1	1.1	0.5	29.4	1.5	1.3	0.7	3.7
Underwear (in volume terms)	1.4	0.5	1.0	0.6	0.4	28.5	2.0	0.2	1.4	3.5
Leather footwear (in volume term)	1.9	2.0	1.9	0.2	0.7	15.3	3.0	0.7	1.1	3.3
Furniture (in value terms)	2.2	0.3	2.2	0.5	1.2	-	3.4	-	0.4	14.5
Cars (in units)	3.1	-	2.1	-	1.9	-	2.8	-	1.7	-
Commodities for light industries (in volume terms) of which										
Wool	1.1	7.8	0.9	0.1	3.2	-	0.4	10.2	3.9	0.1
Cotton fibres	1.3	0.8	-	12.0	1.7	-	0.0	21.0	1.1	-
Cotton yarn	2.8	6.6	0.7	1.4	4.8	2.8	8.6	0.0	0.3	6.2
Woolen yarn	1.1	16.3	4.9	-	8.7	-	3.3	-	6.5	0.5

^aImports and exports include extra-union trade.

Political disputes of ethnical groups and poor transport infrastructure are further impediments against a strategy of "looking South" of the Southern Union republics.

Among the net agricultural exporters the Ukraine probably ranks best as far as its capacity is concerned to adjust to a sudden break of inter-republican economic relations. This republic has an own strong agricultural base and in addition enjoys well-developed resources of energy and mineral ores. Such resources could be capitalised on world markets and thus would yield badly needed foreign exchange earnings. Geographical proximity to Western markets, a fairly high degree of ethnical homogeneity, and complementarity in production patterns with the European part of Russia are further assets of the Ukraine.⁷

The regional distribution of traded goods in light industries in Table 4 underlines the industrial backwardness of Central Asian states which emerge as commodity sources only (for instance, Uzbekistan in cotton fibres). In addition, the Caucasian states rank highly as exporters in textile industries and so do the Baltic states in wood processing (furniture).

Yet, considerable caution is at stake when interpreting the pre-1991 trade figures in the industrial sector as far as their relevance for post-1991 is concerned. Such regional patterns could easily become fully obsolete if industries would fail to meet conditions of pricing at world market level or would have to lay off capacities because of being cut off from intra-USSR sourcing.

VI. Pre-1991 intra-Union Interdependencies in the Light of Post-1991 Disintegration: Some Preliminary Hypotheses

By November 1991 the future direction of the intra-union division of labour and its institutional underpinnings are still uncertain.

⁷ This view finds support in a ranking of Union republics by their economic potential published by the Deutsche Bank [Deutsche Bank, 1991, p. 9 and 45]. In this ranking the Ukraine tops the list of the republics.

What we know is that under socialist planning each republic and within each republic each plant was tied into a rigid inter-sectoral, inter-industry and even inter-product pattern of supplies and deliveries which led to an extreme overspecialisation. It is evident that such patterns will have a short living in a process of market reforms but in which direction changes will move depends - among other things - on the new institutional framework underlying the future inter-republican transactions.

The uncertainty with respect to the framework holds for the real sphere, that is whether independent units will form a free trade area, a customs union or another preferential trading arrangement or will opt for a complete delinking, as well as for the monetary sphere. Possible options for the latter sphere are a full-fledged monetary union, or a monetary arrangement with an anchor currency and discretionary parity realignments, or different national exchange rate regimes with single currency pegs or basket pegs.

Unless these institutional arrangements are settled and detailed documentation about existing bilateral trade links and financial flows between individual republics becomes available, there is no ground at all for drawing conclusions from heavily distorted trading patterns. For instance, to assess which republics would be well-advised to negotiate viable common monetary and trade policies and which ones would better look for new links, requires information on different regional clusters of economic activities in merchandise trade and financial flows. This information is either not available or seriously flawed by the peculiarities of central planning [Brown, Belkindas, 1990, pp. 25-26].

One could be tempted to draw conclusions from disintegration experiences outside the Soviet Union but again such comparisons are open to a large number of qualifications and caveats given the unique nature of the intra-union pattern of overspecialisation.

Nonetheless, what comes to mind is the experience of disintegration processes in colonial-type arrangements between young independent economies and the former Metropolitan economy, such as between

France and its former West and Central African colonies at the beginning of the sixties. In fact, beyond many differences some similarities are striking. For instance, during the colonial period the satellite economies concentrated almost all their trade and capital flows on the metropolitan economy. The latter enjoyed implicit income transfers received from the satellites through exports of overpriced manufactures to them. Such transfers were partly offset by overpriced commodity exports from the satellites to the metropolitan economy, but the net transfer remained positive for the latter. During the colonial period there was a monetary union as well as a customs union. When the satellites became independent, the customs union with the metropolitan economy was dissolved while the monetary union was continued in a different form.

The results from these disintegration processes between countries at very uneven levels of economic development suggest the following hypotheses:

First, if after correct accounting of intra-union trade flows in world market prices the Metropolitan country enjoys a large surplus (as it was the case with France and appears to be the case with Russia), the sustainability of a monetary union depends on a permanent flow of financial resources from the Metropolitan economy to the backward economies. France did so over thirty years and thus sustained the so-called Franc Zone. Whether Russia would be prepared to follow this example or whether an external donor would be prepared to play the Russian part is open.

Secondly, the benefits of a fifteen-countries Convertible Ruble area sponsored by compulsory financial transfers from the surplus to the deficit areas do not stand up to scrutiny. Again, the Franc Zone example suggests a negative judgement. The Zone has denied backward countries access to exchange rate policies as an instrument to lower prices of domestic factors of production in the currency of the surplus country, that is to gain competitive advantages vis-à-vis the surplus country in line with differences in the resource endowment. Instead, if deficit countries cannot adjust their exchange rates autonomously, the burden of adjustment to international prices - as argued before - rests with other policies (for instance, wage

policies or fiscal policies). The African experience clearly shows that such substitutes have failed to play the role of exchange rate policies. Backward countries soon became victims of an imitation effect, that is allowing real wage rates in backward areas to climb up to the level of the surplus countries. In other words, should the discrepancies between core countries and backward countries become more pronounced after changing the accounting system to world market prices, the maximum size of a Convertible Ruble area, that is the territory of the former Soviet Union, would very unlikely to be the optimum size.

Thirdly, a monetary union covering the territory of the former Soviet Union would not only be costly for the low-skilled labour-abundant backward countries vis-à-vis the core countries accumulating capital. It would also expose member countries with a promising industrial base to external shocks "imported" from the commodity-rich member countries through Ruble/Dollar rate fluctuations as a result of volatile commodity prices. This argument rests on the assumption that the future Convertible Ruble/Dollar rate will very much depend on the international price of commodities exported by the members of the Ruble area, primarily by Russia. Exported commodities seem to be better candidates for surviving the process of real adjustment compared to manufactured goods, at least during the transition period. Sudden price hikes, for instance, would then lead to an appreciating Ruble (in real terms), that is to an increase of prices of non-traded goods relative to traded goods (unless the resource inflows are sterilised). An appreciating Ruble, however, would damage the export prospects of commodity-poor countries in the Ruble area. Such "Dutch disease" problems also emerged in the Franc Zone occasionally (for instance, after the 1977 coffee price boom). As inflows were not sterilised, they led to public overspending and to losses in international competitiveness of manufactured goods.

Fourthly, turning to the real sphere, the intensity of past intra-Union trade flows provides some support for maintaining a trading arrangement, that is not to impose internal barriers to trade. Preferably, this arrangement should cover a customs union rather than a free trade area because the latter would require controls of rules of origin in order to discourage trade deflection.

Trade deflection, that is indirect external imports via the member country with the lowest external tariff, would occur if the individual countries would opt for very different levels of external protection. Given the differences in the specialisation pattern and the resource endowment, however, some former republics might prefer high external protection for infant-industry arguments while republics relying on their natural resource base might opt for low protection. A free trade area comprising countries with such different levels of external protection would inevitably be trade-diverting and costly for the non-members as well as for the high-tariff countries too. The latter countries would soon be caught in a trap of regional import substitution without having a chance to compete successfully on markets of non-member countries. A customs union in which the common external protection would be on the lowest possible level appears as the best alternative. Again, the Franc Zone supports this argument. When the customs union between France and the African countries was given up, the latter countries rapidly moved into excessive and inefficient import substitution.

Whatever lessons can be drawn from such experiences, it is in any case evident that the contractual underpinnings of future trade flows and capital relations between independent and even sovereign economies will be crucial for the direction and speed of the adjustment process. What is known is that the starting conditions differ widely among the economies because of differences in market size, political and cultural homogeneity, resource endowment and backwardness. Such differences could mean that an all-embracing contractual solution may be too a costly compromise for some economies while others will continue to link to the big economies, that is Russia and the Ukraine. The larger the membership of a regional economic grouping on the territory of the former Soviet Union will be, the larger is the need for compromises and the more distributional conflicts will govern the principles of resource allocation through the market. In this respect some countries will seriously look for alternatives to a follow-up of the "ancient regime", perhaps for sub-groupings with other former republics or for contractual links to Eastern European countries and the European Community. The advantage of the latter would lie in a self-imposed externally binding discipline in national policy-making.

Appendix Table 1: Share of Individual Republics in Total Union Industrial Output, by Products, 1989 (in per cent)

	Russia	Ukraine	Belorussia	Uzbekistan	Kazakhstan	Georgia	Azerbaijan	Lithuania
Electric power	62.5	17.2	2.2	3.3	5.2	0.9	1.4	1.7
Mineral oil, fuels	90.0	0.9	0.3	0.4	4.2	0.03	2.2	-
Natural gas	77.3	3.9	0.04	5.2	0.81	0.01	1.4	-
Coal	55.4	24.3	-	0.8	18.7	0.2	-	-
Cast iron	54.0	40.8	-	-	4.6	0.6	-	-
Steel	57.9	34.2	0.7	0.7	4.3	0.9	0.5	0.0
Rolled ferrous metals	57.1	34.5	0.6	0.8	4.3	1.0	0.6	-
Steel pipes	60.7	33.5	0.4	-	0.1	2.5	2.8	-
Iron ware	44.4	45.5	-	-	9.8	-	0.3	-
A.C. electric motors	22.6	35.8	13.5	1.8	-	2.5	3.9	4.6
Metal-cutting machines	46.6	22.6	10.4	0.0	1.6	1.4	0.6	6.6
Forging & stamping machines	66.0	25.3	1.8	2.1	2.8	-	-	0.0
Oil equipment	81.6	16.8	-	-	-	-	-	-
Chemical equipment & spare parts	63.1	28.5	1.1	3.9	1.8	0.1	0.3	0.1
Agricultural machinery	57.1	27.9	1.7	4.1	6.2	0.1	0.4	0.2
Equipment for livestock-raising & fodder production	31.6	28.8	23.0	0.6	5.7	0.1	0.2	2.6
Excavators	62.3	29.2	0.4	2.2	1.4	-	-	-
Electric hoists	50.7	22.6	0.9	25.2	0.6	-	-	-
Soda ash	73.7	26.3	-	-	-	-	-	-
Caustic soda	73.0	14.8	-	-	2.0	-	6.9	-
Mineral fertilizer (100 % concentration)	51.1	15.0	18.3	5.6	5.0	0.5	0.8	1.8
Synthetic fibres	46.9	12.3	28.9	3.3	1.3	2.4	-	0.9
Tires	69.2	16.3	7.2	-	3.5	-	1.9	-
Wood, rough	91.6	3.1	2.3	-	0.7	0.1	0.0	0.7
Timber	82.0	8.2	3.3	0.6	2.0	0.5	0.2	0.9
Paper	84.6	5.6	3.2	0.4	0.0	0.4	-	1.9
Cement	60.2	16.7	1.6	4.4	6.2	1.1	0.7	2.4
Sheet rock	55.7	16.2	4.9	4.8	7.7	0.4	0.9	1.3
Roofing materials	56.8	15.3	7.1	6.6	6.6	3.1	-	2.4
Bricks	53.8	22.6	5.0	4.7	5.4	0.6	0.3	2.4
Window glass	61.9	20.9	5.5	-	-	-	2.2	1.7
Cotton fibres	-	-	-	61.4	3.8	-	8.1	-
Cotton cloth	71.9	7.0	1.7	5.8	1.9	0.6	1.5	1.2
Woolen cloth	65.3	10.3	6.7	0.1	4.7	1.3	2.0	3.1
Flax & hemp fabrics	66.2	15.2	9.7	1.2	-	-	-	3.2
Silk cloth	50.4	14.1	10.0	6.7	3.5	2.2	1.4	2.4
Hosiery	40.2	20.3	8.3	5.4	3.9	1.5	2.0	5.0
Knitted garments	39.2	18.3	8.0	5.7	6.4	2.9	2.2	3.2
Shoes (except rubber & felt)	45.7	23.4	5.4	5.3	4.3	2.0	2.1	1.4
Radios	65.0	6.7	10.3	-	0.6	-	-	-
Television, all	44.9	35.9	11.1	-	-	0.7	-	6.2
Television, colour	37.4	37.7	17.4	-	-	1.0	-	4.6
Tape recorders	51.9	31.7	2.0	-	2.8	-	-	3.3
Refrigerators, freezers	55.6	13.6	11.1	3.0	-	-	5.5	5.4
Vacuum cleaners	78.6	17.8	-	-	-	-	-	3.6
Electric irons	53.2	29.6	0.1	-	3.1	-	-	-
Washing machines	67.2	9.7	0.3	-	4.0	-	-	-
Bicycles, adults'	61.5	14.9	15.2	-	0.9	-	-	7.5
Bicycles, children's	60.2	19.9	5.8	-	7.5	-	2.6	-
Motorcycles, mopeds	68.4	10.1	21.5	-	-	-	-	-
Furniture	56.3	18.7	5.7	2.7	3.4	1.3	1.1	2.3
Sugar	31.6	52.6	2.7	-	2.8	0.2	-	1.8
Meat products	50.1	21.3	6.8	2.1	7.3	0.8	0.7	3.4
Fish & other sea food	74.0	10.1	0.2	0.2	0.8	1.3	0.5	3.7
Lard	47.3	25.4	9.1	0.9	4.8	0.07	0.3	4.5
Vegetable oil	34.7	33.2	0.8	15.8	2.8	0.3	1.5	0.0
Canned food	39.1	23.3	3.8	5.5	2.1	3.4	3.5	2.0

	Moldavia	Latvia	Kirghizia	Tadzhikistan	Armenia	Turkmenia	Estonia
Electric power	1.0	0.3	0.9	0.9	0.7	0.8	1.0
Mineral oil, fuels	-	-	0.03	0.04	-	1.0	-
Natural gas	-	-	0.01	0.03	-	11.3	-
Coal	-	-	0.5	0.1	-	-	-
Cast iron	-	-	-	-	-	-	-
Steel	0.4	0.4	0.0	0.0	0.0	0.0	0.0
Rolled ferrous metals	0.4	0.7	-	-	-	-	-
Steel pipes	-	-	-	-	-	-	-
Iron ware	-	-	-	-	-	-	-
A.C. electric motors	1.9	-	3.4	-	7.7	-	2.3
Metal-cutting machines	-	0.0	0.9	3.8	5.5	-	-
Forging & stamping machines	-	0.1	0.8	-	1.1	-	-
Oil equipment	-	-	-	-	-	1.0	0.6
Chemical equipment & spare parts	0.7	0.0	-	0.3	0.0	0.1	0.0
Agricultural machinery	1.2	0.2	0.0	0.3	0.2	0.0	0.4
Equipment for livestock-raising & fodder production	0.4	4.2	2.4	-	-	-	0.4
Excavators	-	-	-	-	-	-	4.5
Electric hoists	-	-	-	-	-	-	-
Soda ash	-	-	-	-	-	-	-
Caustic soda	-	-	-	1.8	1.5	-	-
Mineral fertilizer (100 % concentration)	-	0.5	-	0.3	-	0.5	0.6
Synthetic fibres	-	3.3	-	-	0.7	-	-
Tires	-	-	-	-	1.9	-	-
Wood, rough	0.0	0.8	0.0	-	0.0	-	0.7
Timber	0.3	0.8	0.2	0.2	0.1	0.1	0.6
Paper	-	2.2	-	-	0.2	-	1.5
Cement	1.6	0.5	1.0	0.8	1.2	0.8	0.8
Sheet rock	1.8	1.0	1.9	1.0	0.8	0.8	0.8
Roofing materials	-	-	-	0.5	-	-	1.6
Bricks	0.5	1.0	1.3	0.7	-	1.1	0.6
Window glass	-	1.6	3.2	-	-	2.2	0.8
Cotton fibres	-	-	0.8	10.9	-	15.0	-
Cotton cloth	1.9	0.7	1.3	1.6	0.3	0.3	2.3
Woolen cloth	0.03	2.17	1.6	0.3	0.9	0.4	1.1
Flax & hemp fabrics	-	2.0	1.3	-	-	-	1.2
Silk cloth	2.1	1.3	0.6	3.5	0.9	0.4	0.5
Hosiery	2.0	3.7	1.6	2.1	2.3	0.9	0.8
Knitted garments	3.5	2.2	1.1	0.8	4.7	0.6	1.2
Shoes (except rubber & felt)	2.8	1.2	1.4	1.3	2.2	0.6	0.9
Radios	0.0	17.4	-	-	-	-	-
Television, all	1.2	-	-	-	-	-	-
Television, colour	1.9	-	-	-	-	-	-
Tape recorders	2.2	1.7	2.7	-	1.7	-	-
Refrigerators, freezers	3.2	-	-	2.6	-	-	-
Vacuum cleaners	-	-	-	-	-	-	-
Electric irons	8.2	3.1	-	-	2.7	-	-
Washing machines	4.2	9.1	3.7	-	1.8	-	-
Bicycles, adults'	-	-	-	-	-	-	-
Bicycles, children's	-	4.0	-	-	0.0	-	-
Motorcycles, mopeds	-	-	-	-	-	-	-
Furniture	1.9	2.1	0.6	0.5	1.0	0.2	2.2
Sugar	3.3	1.9	3.1	-	-	-	-
Meat products	1.9	1.9	1.0	0.5	0.5	0.3	1.4
Fish & other sea food	0.08	4.9	0.02	0.03	0.07	0.5	3.6
Lard	1.7	2.7	0.8	0.4	0.04	0.2	1.8
Vegetable oil	3.6	0.4	0.5	2.9	0.2	3.3	-
Canned food	8.3	2.4	0.8	1.8	1.9	0.4	1.7

Appendix Table 2: Intra-Union and Extra-Union Trade of Former Soviet Union Republics, 1988 (in Mill. Rubles)

	Domestic (intra-union)		Foreign (extra-union)		Domestic (intra-union)		Foreign (extra-union)		Domestic (intra-union)		Foreign (extra-union)		Domestic (intra-union)		Foreign (extra-union)		Domestic (intra-union)		Foreign (extra-union)		Domestic (intra-union)		Foreign (extra-union)	
	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports
	Russia				Ukraine				Belorussia				Uzbekistan				Kazakhstan							
Total	68963.9	69224.2	66901.2	33313.5	36431.6	40055.2	13430.7	6880.1	14171.4	18221.7	3672.4	1695.5	10623.7	8957.2	1703.4	1529.7	13686.4	8337.1	2733.7	827.7				
Industry	64665.9	68498.6	60129.9	32075.5	35964.4	37930.0	12157.5	6608.4	13716.9	17796.0	3068.7	1686.6	10217.3	7700.5	1464.9	1473.7	13464.1	6772.7	2525.8	819.8				
Electric power	527.1	490.7	0.0	100.6	157.7	159.7	0.0	525.0	135.7	26.2	0.0	21.0	191.6	180.3	0.0	0.4	343.5	199.0	0.0	0.0				
Oil, gas	1606.4	7474.8	789.4	9453.7	3918.9	345.3	59.9	416.7	1801.4	1157.3	2.3	340.6	968.3	619.2	32.1	22.4	1334.0	878.7	0.0	12.7				
Coal	183.1	461.7	278.8	701.5	295.2	256.2	119.1	691.9	58.9	0.0	13.0	0.0	37.6	14.5	0.0	0.0	166.6	326.1	0.0	6.0				
Other fuels	25.2	1.8	0.0	0.8	2.2	0.0	0.0	0.0	1.1	0.4	0.0	0.6	0.2	0.0	0.0	0.0	0.9	0.0	0.0	0.0				
Ferrous metals	6367.9	5371.5	2505.9	1500.6	2408.8	6166.1	504.5	1911.0	1328.6	197.5	63.5	14.5	652.8	111.4	23.4	0.0	1010.9	862.9	88.2	187.0				
Non-ferrous metals	1588.1	3047.1	1248.8	1593.2	1896.5	913.7	165.3	45.7	406.0	68.8	51.4	1.2	364.3	468.1	9.8	0.1	241.8	482.4	2.0	294.0				
Chemicals, petrochemicals	6189.2	8252.7	5483.7	2835.1	4189.4	3294.9	1167.9	629.8	1974.3	2249.4	390.1	311.5	976.4	813.5	35.8	40.2	1462.3	966.3	116.5	65.2				
Machinery	20848.9	27114.5	24577.8	9596.4	13063.3	15695.7	3519.1	1523.1	4728.7	7686.4	1161.5	786.7	3152.2	1203.2	140.3	99.6	4646.2	776.0	645.6	97.7				
Wood, paper, pulp	795.9	4177.2	1345.4	3057.8	1580.9	411.9	436.3	40.9	383.0	454.5	86.7	32.1	514.3	31.5	86.9	0.2	772.9	25.5	166.1	0.2				
Construction materials	751.8	1152.3	575.9	165.9	342.6	727.5	92.6	30.1	238.9	230.9	29.5	10.1	188.0	82.6	25.1	0.1	285.8	143.9	28.6	2.1				
Light industry	11560.5	6392.2	13881.8	1459.9	4907.6	2608.6	3654.8	238.0	1367.0	3718.2	828.0	68.6	1492.8	3278.6	712.3	1296.6	1539.5	1402.0	1027.8	138.0				
Food industry	13135.0	2598.3	8563.3	1145.5	2221.2	6539.3	2236.7	468.4	1034.8	1693.0	421.7	19.8	1481.5	832.9	393.5	14.1	1376.8	631.6	430.7	16.7				
Industry n.e.s.	1086.8	1963.8	879.1	464.5	980.1	809.1	201.3	87.8	258.5	313.4	21.0	79.9	197.3	64.7	5.7	0.0	282.9	78.3	20.3	0.2				
Agriculture	3950.1	333.0	5594.8	304.3	244.8	1676.9	1062.4	39.0	337.3	389.2	547.9	1.5	348.6	818.0	238.5	53.9	160.1	1516.4	207.7	7.1				
Other sectors	347.9	392.6	1176.5	933.7	222.4	448.3	210.8	232.7	117.2	36.5	55.8	7.4	57.8	438.7	0.0	2.1	62.2	48.0	0.2	0.8				

(Appendix Table 2 continued)

	Domestic (intra-union)		Foreign (extra-union)		Domestic (intra-union)		Foreign (extra-union)		Domestic (intra-union)		Foreign (extra-union)		Domestic (intra-union)		Foreign (extra-union)		Domestic (intra-union)		Foreign (extra-union)	
	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports
	Georgia				Azerbaijan				Lithuania				Moldavia				Latvia			
Total	5218.4	5508.1	1274.5	392.7	4258.2	6357.5	1414.0	424.5	6238.5	5430.7	1249.1	527.1	4986.5	4800.3	1093.9	257.2	4632.8	4515.2	958.4	380.9
Industry	4986.4	5232.5	1131.3	377.5	4162.9	6075.1	1208.1	408.2	6154.3	5317.3	1046.8	526.4	4863.7	4475.9	976.5	253.0	4507.4	4233.6	811.1	347.8
Electric power	57.0	6.0	0.0	11.3	26.6	33.9	0.0	0.0	91.0	164.2	0.0	0.0	13.0	10.6	0.0	94.3	133.6	75.0	0.0	0.0
Oil, gas	379.9	4.8	33.1	95.2	447.7	992.1	1.0	142.9	1047.4	306.7	0.7	178.7	513.9	0.0	0.0	0.0	489.7	6.5	0.0	0.0
Coal	19.5	7.8	0.0	0.0	6.9	0.0	0.0	0.0	19.3	0.0	35.8	0.0	135.8	0.0	0.5	0.0	2.8	0.0	24.3	0.0
Other fuels	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.7	0.0	1.0	0.0	0.0	0.0	0.0	0.2	0.4	0.0	0.8
Ferrous metals	464.7	317.2	24.2	58.0	291.0	99.5	91.9	3.0	370.0	30.4	24.1	2.6	310.6	51.3	8.2	9.1	401.3	104.0	10.0	12.2
Non-ferrous metals	101.5	41.2	0.5	2.2	109.2	111.5	0.1	13.0	180.5	8.2	5.2	0.1	157.3	0.0	22.2	0.0	136.3	13.5	0.0	0.4
Chemicals, petrochemicals	500.7	306.4	40.6	9.3	448.3	581.3	82.3	10.4	767.1	358.7	69.5	11.0	582.1	190.2	98.5	0.4	627.6	631.3	89.9	36.7
Machinery	1437.7	814.4	95.2	33.5	1089.7	936.5	256.8	109.9	2168.1	1764.5	361.6	141.6	1603.7	924.4	192.5	38.8	1565.9	1266.4	111.5	136.4
Wood, paper, pulp	220.8	56.5	27.0	0.1	156.1	22.5	41.5	0.0	218.2	244.1	18.6	23.1	223.0	104.9	38.9	0.6	139.6	133.7	20.9	34.5
Construction materials	133.0	33.8	21.8	0.0	107.9	50.4	14.5	0.3	89.4	71.8	9.6	7.2	105.1	68.3	14.9	1.7	74.8	60.2	3.8	4.6
Light industry	836.1	1217.0	384.5	58.4	597.3	1467.9	412.8	88.6	783.0	1398.3	265.5	18.1	718.8	1066.1	427.7	21.6	502.6	798.7	259.9	14.6
Food industry	708.1	2329.1	495.5	109.0	756.8	1668.7	300.2	40.0	301.4	921.2	249.7	141.5	367.4	1924.2	170.1	84.2	315.4	992.5	281.0	106.4
Industry n.e.s.	127.2	98.3	8.9	0.5	125.4	110.8	7.0	0.1	114.5	48.5	6.5	1.5	133.0	135.9	3.0	2.3	117.6	151.4	9.8	1.2
Agriculture	205.3	268.4	143.1	11.1	91.4	273.8	205.9	10.2	80.6	109.8	202.3	0.7	98.9	318.2	117.0	2.6	116.6	102.4	146.0	10.5
Other sectors	26.7	7.2	0.1	4.1	3.9	8.6	0.0	6.1	3.6	3.6	0.0	0.0	23.9	6.2	0.4	1.6	8.8	179.2	1.3	22.6

... continued

(Appendix Table 2 continued)

	Domestic (intra-union)		Foreign (extra-union)		Domestic (intra-union)		Foreign (extra-union)		Domestic (intra-union)		Foreign (extra-union)		Domestic (intra-union)		Foreign (extra-union)		Domestic (intra-union)		Foreign (extra-union)		Domestic (intra-union)		Foreign (extra-union)	
	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports
	Kirghizia				Tadzhikistan				Armenia				Turkmenia				Estonia							
Total	2971.8	2536.8	773.0	58.6	3022.6	2025.2	469.8	333.5	4017.6	3683.1	858.8	83.9	2486.0	2389.2	432.2	245.0	3047.2	2715.1	661.4	245.9				
Industry	2900.1	2423.9	710.1	47.5	2917.8	1935.2	402.6	325.0	3905.3	3662.8	754.7	83.7	2457.0	2245.9	389.8	213.0	2975.5	2676.8	525.7	245.2				
Electric power	29.9	78.1	0.0	0.0	60.5	67.0	0.0	0.0	1.9	24.0	0.0	0.0	8.9	58.9	0.0	0.0	29.0	129.9	10.4	0.0				
Oil, gas	314.3	11.4	0.0	0.0	295.9	16.8	0.0	0.0	437.2	0.0	0.0	0.0	100.2	750.6	0.0	0.0	262.3	6.2	0.0	1.9				
Coal	31.4	21.6	0.0	0.0	10.8	4.3	0.0	0.0	16.9	0.0	0.0	0.0	6.6	0.0	0.0	0.0	3.4	0.0	7.2	0.0				
Other fuels	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	14.6	0.0	0.6				
Ferrous metals	187.3	8.2	7.6	0.0	127.7	3.4	12.0	0.0	271.6	19.7	5.4	0.4	107.0	3.3	8.3	0.0	139.2	5.9	13.9	0.7				
Non-ferrous metals	87.4	128.6	1.2	17.0	189.8	300.1	9.3	101.0	148.8	120.2	0.1	0.0	9.4	5.2	0.0	0.0	87.9	8.2	0.3	0.0				
Chemicals, petrochemicals	338.6	24.7	19.7	0.0	321.1	94.8	23.0	0.1	325.2	378.4	68.0	17.8	200.1	150.4	8.7	1.5	455.1	316.4	71.8	10.4				
Machinery	948.8	938.8	42.2	10.9	783.0	207.0	35.1	29.3	945.4	839.1	61.0	6.8	925.6	44.2	21.3	0.8	996.6	535.0	147.3	33.1				
Wood, paper, pulp	107.1	4.5	15.2	0.0	106.9	7.1	20.8	0.0	117.1	19.5	30.8	0.0	103.1	0.3	25.7	0.0	80.6	127.9	9.2	25.5				
Construction materials	64.6	12.7	3.5	0.0	56.4	32.9	7.2	0.1	67.8	41.5	20.5	0.9	53.5	20.9	4.2	0.5	38.9	29.3	8.6	2.3				
Light industry	470.9	650.8	271.4	13.8	494.2	973.1	191.5	190.1	844.8	1465.4	272.5	35.8	395.1	1116.1	195.6	206.6	505.9	798.2	163.7	54.1				
Food industry	263.5	521.1	348.3	5.8	403.4	225.2	101.7	4.4	587.3	577.6	289.1	21.8	433.9	95.3	122.8	3.6	307.0	649.7	89.3	113.4				
Industry n.e.s.	56.3	23.4	1.0	0.0	68.1	3.5	2.0	0.0	141.2	177.4	7.3	0.2	113.6	0.7	3.2	0.0	69.4	55.5	4.0	3.2				
Agriculture	64.5	107.7	62.9	11.1	101.5	79.9	67.0	8.5	109.3	14.7	102.5	0.1	28.2	137.2	42.4	22.0	57.4	29.5	124.7	0.4				
Other sectors	7.2	5.2	0.0	0.0	3.3	10.1	0.2	0.0	3.0	5.6	1.6	0.1	0.8	6.1	0.0	10.0	14.3	8.8	11.0	0.3				

Source: Vestnik statistiki (Statistical Bulletin), Moscow: Finansy y statistika, various issues.

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