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Indirect Transfers in Trade Among Former Soviet Union Republics: Sources, Patterns, and Policy Responses in the Post-Soviet Period

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Indirect transfers in trade among former Soviet Union republics: Sources, patterns and policy... By: Orłowski, Lucjan T., *Europe-Asia Studies* Nov1993, Vol. 45, Issue 6.

The Former Soviet Union (FSU) was composed of 15 republics which were very unevenly endowed with human, physical and natural resources. To contain regional imbalances within the Union and to integrate all republics into a tight and centrally commanded division of labour, the central government operated a scheme of vertical fiscal redistribution between the Union budget and the republican budgets. Through this system poorer republics became net receivers of direct transfers and richer republics became net donors. This scheme, which collapsed with the dissolution of the Union in 1991, channelled sizeable funds to the poorer Central Asian republics relative to their material product. Yet it failed to equilibrate large existing differences between the per capital fiscal revenues of the republics (Orłowski, 1992).

Budgetary support through direct transfers, however, was not the only mechanism to redistribute income between the republics. Inter-republican trade flows in which prices for goods were set by the authorities independently from the market mechanism became the second, even more powerful channel of income transfers. Whenever such prices diverge from the level which would be determined by the free interaction of market forces, trade flows include a transfer element. Importers of overpriced goods 'donated' parts of their income to the exporting countries. So did exporters of underpriced products vis-a-vis importers. Such implicit transfers were not unique to trade between centrally planned economies. They have sometimes also been included in trade flows between market economies.[1] Yet, in contrast to market economies, they were a central element in trade among centrally planned economies and constituted an important mechanism of inter-state income redistribution.

To abandon such a system at short notice can result in severe adjustment problems in net recipient countries, especially if import demand is price inelastic and domestic substitutes are not available. More specifically, this is because importers of oil and gas will have to pay much higher prices for their deliveries when low, preferential prices are no longer available to them, since they do not have alternative supply sources. To assess the degree of adjustment required it is necessary to delineate the sectoral structure of trade flows by the magnitude of deviation of domestic prices from world market prices. For trade among the FSU republics the distinction between energy and non-energy products is particularly highlighted. I then discuss the regional pattern of transfers in order to identify net donors and net recipients and assess the magnitude of transfers for the individual countries. An answer to this question could provide hints on the preference of net recipients for remaining in a currency union with the net donors in order to benefit from continued direct transfers or from credits.

Having laid out the empirical evidence of indirect transfers, their underlying instruments are then examined. Following this I analyse the implications of abandoning implicit transfers in the process of economic transformation and the options which are available to facilitate adjustment towards undistorted prices. The concluding section presents selected policy solutions.

Indirect transfers by sectors

An assessment of the contribution of individual traded goods to indirect transfers requires relating a vector of traded quantities to vectors of both undistorted prices (preferably world market prices) and distorted prices representing domestic prices and comparing the different trade volumes.[2] Such a comparison is admittedly crude as it excludes reactions of purchasers to changing relative prices in terms of changing quantities supplied and demanded. Therefore, it is a 'back-of-the-envelope' calculation based on a partial equilibrium analysis with highly price inelastic demand and supply.

Such an exercise was done by the former Central Statistical Office of the USSR (Goskomstat) for 1987-90 intra-Union trade in fifteen sectors. It shows to what extent intra-Union trade flows would have changed in value terms if instead of domestic prices so-called 'world market' prices had been applied. It goes without saying that this approach is highly debatable for differentiated goods, particularly non-standardised capital and intermediate goods. It is simply difficult to compare the utility features of the Soviet differentiated industrial products (machines, computers, cars, etc.) with those available in world markets and, therefore, to assess the level of comparable world market prices for Soviet products. Besides such general doubts, the approach can be challenged particularly for the former USSR. Owing to its longstanding isolation from world markets and the political priorities under which companies had to work, these companies supplied goods for which world market prices either did not exist or were irrelevant. For instance, this was the case in large parts of the capital goods industry which belonged to the military-industrial complex. Thus, the exercise seems more useful for homogeneous primary commodities such as energy, agricultural goods, food products, and to some extent for standardised manufactures produced in light industries (textiles, footwear).

However, even in these sectors the Goskomstat data should be cautiously interpreted because the price vector cannot be split between individual products. In addition, the data do not allow us to identify exchange rates which would be determined by the purchasing power parity principle, that is to say by the ratio of domestic to foreign prices of fully comparable goods. This restricts the analysis to a plausibility test of the magnitude of differences between world market and domestic prices and their direction in individual sectors.

The matrix of intra-FSU trade flows in domestic and world market prices is reported in Appendix Table AI. The relevant extracts from the raw data are averages of world market to domestic market price ratios over all republics, weighted by trade volumes of individual republics in 1990 (Table 1).

Overall, the ratios display a wide spread, ranging from strongly underpriced trade (relative to world market prices) in oil and gas, where the world market price is 2.7 times higher than the domestic price,^[3] to overpriced trade in light industries, where the world price is only 33% of the domestic price. This spread indicates a large extent of discriminatory pricing between sectors and, as a result, high indirect transfers channelled on one side from net exporters to net importers of underpriced goods (such as oil and gas), and on the other side from net importers to net exporters of overpriced goods (light industry and food products). In general, domestic prices differed more from world market prices in resource-based sectors, including light industries and agricultural products, than in manufactured goods.

Given its weight in total intra-FSU trade, the oil and gas sector played a dominant role in the transfer mechanism, as is shown by Table 2, which presents current ruble values of cumulative indirect transfers by commodity groups. In 1990 the oil and gas sector accounted for almost 61.5% of total transfers through underpriced exports, followed by machine building (17%) and the other resource-based sectors: ferrous metals (6.7%) and non-ferrous metals (10.6%). The ruble amount of these transfers is obtained as the difference between the cumulative all-republic exports estimated in world market prices and their value in domestic prices for transfers attributable to subsidised exports, and for overpriced imports it is obtained as the difference between domestic and world market prices for all republics in respective industries. The total values of both types of transfers are then summarised and shares of individual industries in these two types of transfers are calculated. The placement of machine building among sectors in which domestic prices were much lower than world market prices is somewhat puzzling given the well-established myth that the former Soviet machine industry was a large recipient of transfers. But a possible explanation may lie on the side of disproportionately large direct transfers to this sector, which consequently helped to keep domestic prices at very low levels. These direct transfers were well hidden in the military budgets and thus difficult to document. Transfers in terms of overpriced imports were predominantly concentrated on two consumer industries, light industry (44.8%) and the food industry (31.2%).

This sectoral structure of price distortions is not unique as far as its incidence is concerned. A similar situation to that in which Soviet consumers carried a large burden of distortions while manufacturers of capital and consumer goods enjoyed subsidisation through easy access to cheap raw materials and intermediate goods can also be observed in some Western economies. In these economies the escalation of tariffs and non-tariff barriers with increasing stage of production leads to higher rates of effective protection in finished goods industries than in backward-linked industries and produces similar results. Differences between the two systems exist in the tools which they apply for achieving sectoral discrimination. While border measures prevail in Western economies, the closed economy type of socialist economies used indirect taxes and subsidies as measures of discrimination. It should be further noted that the result of highly overpriced imports in the food and light industries may be overstated by the peculiar system of data collection and reporting in the FSU. In this system, domestic prices of export goods were in fact prices paid by trading enterprises to domestic producers (or, in other words, prices de facto received by domestic producers), while domestic prices of imported goods were actual prices paid by final domestic buyers. Thus on the export side turnover taxes are not included, while import prices included turnover taxes and other charges. A sample of recalculation aimed at eliminating this distortion is presented later in this article.

It is noteworthy that prices for unprocessed agricultural products were closer to world market prices than prices for processed food goods. As it is known that prices for basic food were subsidised, indirect taxation for other goods (in particular alcoholic beverages) must have been more important. It is in this sector that price comparisons become somewhat dubious because of distortions inherent in world market prices (for instance, the downward pressure on world market prices due to OECD countries' subsidised exports of their domestic surpluses).

In total, the Goskomstat figures show that negative transfers exceeded positive transfers by about 17%. The main burden of protecting domestic industries against world market competition had to be shouldered by Soviet consumers who, however, also benefited, but to a much smaller extent, from underpriced energy. The main beneficiaries of distortions were the relatively energy-intensive industries, which received incentives to use energy wastefully.

Irrespective of the regional distribution of indirect transfers among republics, which is discussed in the next section, the results imply the existence of a regional distribution of transfers between regions producing consumer goods and those consuming them. To some extent, these were comparable regions. Consumer goods were produced mainly in and around the urban agglomerations in the European part of the Union, which also contained the largest part of the population (Langhammer, Sagers & Lucke, 1992)

Regional distribution of indirect transfers

As suggested above, indirect transfers were unevenly distributed among the FSU republics. Details of the allocations of these transfers between the republics are presented in Table 3. Without exception, transfers were made by the individual republics through underpriced exports of oil and natural gas and overpriced imports of non-oil and gas products. On the other side, transfers were received through overpriced exports of non-oil and gas products and underpriced imports of oil and gas. Russia, Turkmenia, and to a much lesser extent Azerbaijan were net donors of transfers via underpriced oil and gas. Predominantly Russia, but also to a lesser degree Ukraine, Uzbekistan, Kirghizia and Kazakhstan provided transfers by accepting overpriced imports of non-oil and gas goods. Meaningful results for the current macroeconomic disturbances can be derived from the last column of Table 3, which computes the share of net transfers in GDP of individual republics. Only two of them contributed a portion of their GDP to other republics: Russia--3.7% and Turkmenistan--a sizeable 10.8%. These two now independent states are expected to benefit from the current (1992/93) gradual move to world market prices in interrepublican trade, but only in the short run, since the move is likely to reduce incomes in transfer-receiving republics and, consequently; their purchasing power for all goods produced within the FSU network. The most significant negative income shocks from the discontinued indirect transfers are expected for Moldavia (which was a net recipient to the extent of 24% of GDP in the indirect transfer system), the Baltics and the Caucasian states, all of them receiving more than 10% of their annual GDP through indirect transfers.

It should, however, be noted that comparisons of domestic prices and world market prices, especially for non-oil and gas products, do not match purchasing power parity conditions since the Soviet statistical agency Goskomstat used the official Gosbank fixed exchange rate of 0.60 rubles per US\$ for the computation of world market prices for Soviet products (Granberg, 1992, p. 11). Yet the level of exchange rate does not affect the identification of sectoral and regional flows of transfers since these are closely tied to distortions of Soviet relative prices as compared to world market relative prices (Granberg, p. 7).

Concerning the source and direction of indirect transfers, the FSU republics can be grouped into four boxes (Table 4). One box is filled with Russia alone as it is the only state which conceded transfers both by exporting oil and gas below world market prices and by importing non-oil and gas products above world market prices. Turkmenia and Azerbaijan, as the other net exporters of underpriced oil and gas, also enjoyed the receipt of transfers through their overpriced exports of non-oil and gas. They are, therefore, placed in the second box but also show differences as Turkmenia was a net donor of transfers while Azerbaijan was a net recipient. Box 3 contains the four countries (Ukraine, Uzbekistan, Kazakhstan, Kirghizia) which acted as donors through importing non-oil and gas products above world market prices but also benefited from importing oil and gas (from Russia) below world market prices. For all four countries, the latter flow was quantitatively much more important. Therefore, they appear as net recipients of transfers. Ukraine was the most important recipient in this group, which proves that the most crucial individual flow of indirect transfers within the FSU was that of subsidised oil and gas products from Russia to the Ukraine.[4] Table 3 indicates that more than 50% of the Russian net transfers in oil and gas trade was received by Ukraine. Finally, the eight remaining former republics can be clustered into the fourth box as they were 'double' recipients both by importing underpriced goods and exporting overpriced goods. Given the product composition of price-distorted trade flows, it can be assumed that these countries would be hit most by bringing domestic market prices closer to world market prices. They would have to accept much higher import prices for energy products for which domestic or non-CIS originating substitutes would not exist in the short run. On the other hand, they probably face a more price-elastic import demand in the other countries for their industrial exports. Thus, they would have to accept substantial barter terms of trade losses both through increased import prices and lowered export prices (see Tarr, 1993, for a detailed examination of terms of trade effects of moving to world prices in interrepublican trade).

This computation, however, can only serve as a rough indicator for differences in the magnitude of transfers between the individual republics but not as a proxy for the absolute size of the transfers. Such an assessment would have to be related to the GNP in world market prices, which has never been done by the FSU statistical authorities. As indicated above, a comparison of these shares (Table 3, final column) gives rise to the conclusion that a move of domestic prices to world market prices would result in income gains for Russia and even more substantially for Turkmenia. On the other hand, losses would occur for the remaining FSU republics.

Such effects partly materialised in 1992, when all republics gradually moved to world market prices and when, most notably, Russia applied them to its sales of oil and natural gas to other republics from October 1992. It is still too early to find data assessing the quantity adjustments and income shocks induced by the widespread move to world prices in inter-republican trade (Noren & Watson, 1992). Apart from the price elasticities of demand, estimates of such trade-related income shocks would have to take several identifiable effects into consideration. First, there would be an increase in prices of final output in each sector. This increase would be higher in relatively energy-intensive sectors than in other sectors. In any case, net imports would decline in real terms compared with net exports. Second, there would be changes in relative prices between former subsidised and discriminated sectors followed by a reallocation of resources between the sectors.

Since the FSU demand for oil and natural gas can be assumed to be highly inelastic, Russia, by moving to world prices for its resource exports has undoubtedly induced sharp real income declines in other republics. Furthermore, since deliveries of resources and intermediate materials were strictly determined before by central planners, their recipients were generally unprepared to seek alternative suppliers in open markets. This has made the internal demand for most products even more inelastic than one could expect in a market-driven environment and has further exposed the system to even deeper income shocks. This strong mutual interdependency of the republics on deliveries of major products became evident in November 1992 when the Ukrainian Prime Minister, Kuchma, admitted that his country would continue the strong reliance on Russian oil, natural gas and wood because it was unable to finance alternative sources of these products. On the other hand, importers of formerly overpriced industrial goods could escape to new suppliers outside the FSU and thus reap real income gains provided that they were able either to export goods to hard currency areas or obtain credits in such currencies.

To summarise, the regional analysis of indirect transfers allows us to derive the following observations:

1. Russia and Turkmenia were the only net donors of transfers, mostly due to underpriced exports of oil and natural gas. They are expected to gain as a result of the move to world market prices in inter-republican trade.
2. Belorussia and Azerbaijan would incur losses due to overpriced exports of chemicals (as is reinforced by closer observation of data in Appendix Table A1).
3. Net exporters of food industry and unprocessed agricultural products absorbed transfers due to strong overpricing of these products. Ukraine, Kazakhstan, Georgia and, most of all, Moldavia would be negatively affected if the opening of markets forced them to accept lower prices.
4. Light industry exporters such as Belorussia, the Baltic states and Uzbekistan could face even more adverse effects than the food-exporting countries if higher price elasticities of demand forced them to reduce their prices to the level of foreign competitors.

Dominant causes of indirect transfers

The network of indirect transfers within the FSU can be attributed to at least three principal factors: the arbitrary investment policy of the central government (Seliverstov, 1992, p. 51), the system of price fixing, and the allocation of turnover taxes and subsidies.

The rigid investment policy of the former Soviet authority was purely politically determined and targeted to introduce industrialisation to remote and/or backward areas of the entire FSU irrespective of high transaction costs. Consequently, Ural and Siberian iron plants became highly dependent on supplies of coal from Kazakhstan (Frantseva, 1992), the chemical industries of Belorussia and Ukraine developed a strong dependency on Russia's oil, etc. Thus, such centrally determined fixed investment projects induced trade links between areas or republics that were net importers of cheap natural resources and intermediate materials and those which designated their final output of processed goods for domestic consumption. Importers of overpriced processed goods had to cope with current account deficits which were covered by net capital inflows. This led to the situation where the states of the FSU were highly integrated through the system of state planning of trade and transfers, far more than independent countries in similar income per capita groups are expected to be (Fischer, 1992, p. 41). This integration was not determined by economic criteria consistent with the factor proportions theory of specialisation. On the contrary, the administrative allocation of fixed capital investment was based on large investment programmes for each individual republic. For instance, there were three major programmes for Kazakhstan, promoting the development of military, other heavy industries and the space industry (in Baikonur). Thanks to these programmes Kazakhstan, which--by market economies' standards--would enjoy a comparative advantage in land-intensive and resource-intensive goods, became a stronger player in the capital-intensive military-industrial complex.

Closely related to the investment policy was the system of central price fixing. It is commonly known that prices determined by the central government were fixed for the whole country's economic system. But adjustments to these prices were not balanced between different economic sectors and products and they thus led to significant distortions of relative prices in comparison to prices on world markets. More specifically, prices of basic raw materials and unprocessed intermediate materials were reportedly kept artificially low for longer time intervals in order to ensure 'rentability' (profitability) of producers of processed goods, whose output prices were adjusted more frequently by the central government. As a result, exporters of oil, natural gas and other intermediates soon contributed part of their income to the producers of finished goods. At the same time, the plants exporting subsidised goods were compensated by direct transfers from either the central Soviet budget or the republic budgets (Orlowski, 1992, p. 4). More specifically, these transfers were aimed at financing the delivery of the 'overpriced' heavy machinery for oil and gas companies and at creating special wage incentives for workers willing to relocate to the remote areas, especially to Siberia, where vast natural resources were extracted.

The fixed prices of most products in the FSU economy meant that large transfers, both direct and indirect, had to be provided owing to large differences in costs of production, especially between the remote areas of resource extraction and those closer to industrial centres. This is because most selling prices of processed goods were administratively fixed, while their costs of production varied substantially. Consequently, enterprises might purchase more or less 'underpriced' materials. For instance, Russian chemical and energy companies in the Urals enjoyed more indirect transfers through purchases of much cheaper coal from Kazakhstan than the firms in Western Russia dependent on more expensive Ukrainian coal (Granberg, 1990, p. 78). In fact, differences in costs of producing identical goods in various FSU regions were striking. As reported by Granberg (p. 78), the differences in the cost of oil extraction at the end of the 1980s were as high as five- to sixfold, natural gas extraction five-fold, iron ore three- to fourfold and logging two- to threefold. The largest discrepancy existed in the case of coal extraction, where the cost differential was 20-fold between the low-cost surface extraction in Kazakhstan and the expensive deep mining in Ukraine. Despite the generalised character of these data and the bias stemming from fixing of input prices, one can argue that there had to be a strong mechanism of transfer payments between the republics in view of the fixed and generally equalised prices of outputs.

The final key reason for indirect transfers was the uneven allocation of turnover taxes and direct subsidies between the FSU republics. More specifically, several republics allocated turnover taxes in proportion to labour expenditure in production. By doing that the republics where labour costs were higher, especially Russia, the Baltics, Belorussia and Ukraine, were taxed more for comparable products than those with much lower labour costs, such as the Central Asian states. Moreover, subsidies for consumer goods were charged to the importing republic and were counted as part of its total consumption fund. Consequently, trade in light industry, products, processed food and other consumer goods led to deteriorating trade balances of importing republics because the relative prices of these products were much higher. On the other side, intermediate materials were underpriced in interrepublican trade because of heavy subsidies (Langhammer, 1992, p. 255; A Study of the Soviet Economy (SSE), 1991, p. 194; Granberg, 1992, p. 11). In addition, transactions caused by visitors were assigned to the republic of permanent residence (SSE, 1991, p. 194). For instance, food products sold by Ukrainian travellers in Moscow were not recorded as Russia's imports. Such trading by individual visitors has been always attractive and is expected to continue as long as travelling costs on the FSU territory are low. Therefore, the requirement of adjusting domestic to world market prices varies significantly between the republics in each of the sectors examined.

Recalculation of interrepublican trade balances with the adjustment for turnover taxes, consumer subsidies, and trade by visitors was prepared by Goskomstat SSSR for 1987 and for 1988 and reported in Vestnik statistiki, 3 and 4, 1990, and by Granberg (1992, p. 11). Based on this adjustment, the 1988 interrepublican trade balance in current rubles worsened in the cases of Russia by 8.4 billion, Georgia 0.4 billion and Armenia 0.3 billion. It remained unchanged for Ukraine and improved for all the remaining republics, most significantly for Moldavia and Kirghizia by 1.8 billion in both cases. The substantial deterioration of the adjusted balance of Russia is especially interesting. The 8.4 billion rubles reduction in the adjusted balance was primarily caused by the negative adjustments due to consumer subsidies (by 5.4 billion rubles) and turnover taxes (by 3.4 billion rubles) with a slight positive adjustment due to visitors' purchases (by 0.1 billion rubles) (SSE, 1991, p. 226). The reduction caused by payments of turnover taxes and acceptance of subsidies is understandable given the above-mentioned common rule of interrepublican trade pricing that consumer subsidies on imported goods were paid by the importing republic consumption fund. Furthermore, the proportionally higher labour costs in Russia than elsewhere in the FSU also led to increasing Russian revenues in turnover taxes.

The collapse of indirect transfers in 1992

For all republics of the FSU the year 1992 was marked by a gradual move to what the former Goskomstat estimated to be world market prices in interrepublican trade. This transformation was not caused by purely economic reasons since it would seem to be unwise for most of the republics to agree on such a move since they were net recipients of indirect transfers from Russia. Clearly, the political disintegration of the FSU had a powerful impact on the deterioration of trade and financial linkages between the increasingly independent states.

The move by the republics to world market prices was primarily led by Russia which, under pressure from other republics gradually introducing export and import restrictions, threatened to impose such prices for deliveries of oil, natural gas and other natural resources (see Noren & Watson, 1992, for a detailed presentation). Ultimately the Russian government declared full adoption of what it perceived to be world market prices for exports of oil and gas in October 1992.

The introduction of world market prices for oil and gas resulted in a discontinuation of indirect transfers by the net exporters of previously underpriced resources, predominantly by Russia. At the same time, on a somewhat more optimistic side, its government formally declared that it would not impose export taxes on the deliveries of oil and gas to other republics.

The move to world market prices has strongly promoted largely unreported barter transactions between the leading enterprises in different FSU states.[5] These tendencies have caused sizeable trade shocks within the FSU economic system. For Russia itself the estimated decline of interrepublican exports in real terms in the period 1989 to 1992 reached 22% (in domestic prices), while the drop in its imports from other FSU republics is expected to be 26% (according to the forecast obtained at the Forecasting Institute of the Russian Academy of Sciences). The sharp decline in trade is strongly related to the unusually high degree of inelasticity of demand for products transferred through the FSU economic network and, simultaneously, low substitution between FSU and external goods. This inelasticity is caused by:

- large shares of standardised and thus inelastic products in total trade;
- a worsening infrastructure--for instance, deteriorating ports and pipelines that would bring non-Russian oil and gas to the Ukraine;
- the binding character of trade protocols between the states, that still attempt to fix the volumes of goods exchanged;
- the binding character of traditional sub-contracting links within the large kombinaty that spread their production all over the FSU territory.

But the gradual deterioration of the officially reported interrepublican trade and transfers stemming from distortions of domestic prices vis-a-vis world market levels does not mean that the indirect transfers have been completely discontinued. They have just changed their form, being replaced now by extremely large magnitudes of ruble credits and also by technical delays in clearing payments for trade deliveries in the post-Soviet banking system--which normally takes between two and three months. This situation leads to a sizeable depreciation of the real value of import payables in the presence of ruble inflation that reached 2600% in 1992 and was running at around a 25% average monthly rate in the first quarter of 1993. Needless to say, this technical bottleneck in the payment clearing system is pro-inflationary itself since many exporters attempt to set current prices at the nominal future value that incorporates the near-hyperinflation rate.

So far, indirect transfers have been sustained through the abundant ruble credit to former net recipients. The rate of increase in the Central Bank of Russia (CBR) ruble credit reached 9928% or about 85 times in real terms in the period between 1 January and 15 September 1992, with the bulk of it being generated over summer 1992. Until 1 June the rate was 'only' 2911%.[6] A large yet unidentifiable portion of it was reported to have been allocated to facilitate inter-state payments for trade deliveries and to clear bottlenecks related, for instance, to Russia's commercial banks, which temporarily did not accept credit rubles issued by the Ukrainian Central Bank as payments for Russian exports. Consequently, Russian exporters had to be credited with Russian rubles on their accounts (CBR, Interstate Payments, 1992). Moreover, to facilitate import payments from Russia, central banks of individual republics have also issued vast ruble credits. For instance, the overdraft on the 'technical' ruble credit from the CBR to the Central Bank of Ukraine allowed the latter to issue credit rubles amounting to 84.3 billion rubles in the period between 1 January and 15 September 1992, while the initial 1992 quota permitted on this account was only 15 billion (Nezavisimaya gazeta, 25 November 1992).

If the indirect transfers were abandoned and not replaced by alternative sources of financial assistance further large cuts in deliveries and trade-related income shocks could be expected. As Table 2 implies, exports of light

manufactures and processed food and imports of oil and natural gas, energy, metals and machines would be most negatively affected.

The production of both categories of goods is spread all over the FSU. However, in some republics these two categories were over-proportionately represented in their trade patterns. Exports of processed food were concentrated in Ukraine, Moldavia, Azerbaijan, Latvia and Georgia (as can be directly observed from Table 3). High shares of exports of light industry goods could be seen primarily in Russia, Belorussia, Uzbekistan, Lithuania and Estonia. These republics can be expected to experience income terms of trade losses through declining exports while other former republics such as the Ukraine, Belorussia, the Baltic states and Kazakhstan would lose in real income by higher import bills for energy (see also Tart, 1993).

It is, however, very likely that some transfers to oil and gas recipients will be maintained in order to stabilise production in the entire FSU. In designing the system of future cooperation between the republics this option should be given serious consideration, either directly through subsidisation or indirectly through ruble credits. On the other side, transfers to exporters of light industry and processed food products might be discontinued, in view of the ongoing price liberalisation in intra-CIS trade in these goods (Noren & Watson, 1992).

Concluding remarks: policy solutions

Since 1992 the gradual dismantling of indirect transfers in trade among the FSU states has become a reality which provokes economic policy makers in these countries either to accept the decline of transfers and, consequently, allow short-term trade-related shocks, or to find ways to sustain these transfers.

The proper general message consistent with the comprehensive character of economic liberalisation seems to be to deregulate trade, to abandon the role of state intervention and to allow uninhibited enterprise-to-enterprise trading. Ultimately, when such reform is completed, there will be no need for transfers compensating for distortions of prices in inter-republican trade, since these prices will gradually adjust to world market price structures. Liberalised inter-enterprise trade will undoubtedly be more efficient and, therefore, will make subsidies redundant. Accordingly, the role of currently widespread bilateral trade protocols between the republics, which are supposed to have a binding impact on trade relations among them, should be significantly diminished. It is imperative to note, however, that the current system of inter-republican trade is still based upon the principles of state trading. Yet the administrative quotas are no longer set by the central government in Moscow but by many independent state and local economic authorities. Such a system causes high transaction costs and leads to a situation in which the role of official state protocols becomes obsolete, since local authorities and enterprises have no incentives to adhere to them. Thus in practice in 1992 there were significant problems of fulfilment of the obligatory trade quotas, since local governments imposed price controls and export quotas that reduced export incentives of enterprises (Michalopoulos & Tarr, 1992, p. 7).

The gradual decline of indirect transfers in 1992 and in 1993 has been, to some extent, replaced by accelerated inter-enterprise credit, especially in the first half of 1992 (Ickes & Ryterman, 1993), followed by the massive extension of ruble credit. These two substitutes for indirect transfers are inconsistent with the purpose of economic stability in programmes of economic transition to market systems. They fuel inflation and prolong inefficiency by extending the 'soft budget constraint' to enterprises. Consequently, the easy-access credit policy should be phased out and inter-enterprise credit should be discouraged by heavy taxation. As replacements for indirect transfers aimed at sustaining trade these instruments should be ruled out. Similarly, a shift toward explicit (direct) transfers compensating for the reduction in indirect transfers is not plausible considering the already enormous budget deficits in all of the FSU states and limited external assistance. In addition, a return to direct fiscal transfers would also reinforce the role of central planning and reverse the steps toward economic liberalisation.

Some temporary measures may be considered for the period when state trading and export licensing is still maintained. Among them is a system of auctioning export licences, advocated by Michalopoulos & Tarr (1992, p. 10). The auction would assign licences to the most efficient suppliers, thus reducing the need for sizeable subsidies and maximising the rents retained in the exporting state. But the system of auctioning export licences is a second-best solution which is inferior to the policy of removing quantitative restrictions in interrepublican trade.

In order to ease the need for indirect transfers a fundamental reform of the post-Soviet trade policy should be undertaken. Almost without exception today's regulation of external trade in the FSU republics is based on export restraints. The role of direct import restrictions is minimal, not only in intra-CIS trade, but also in trade with convertible currency areas. Instead, it can be argued that the present system indirectly restricts imports, since impediments to

exports outside the ruble zone limit the inflow of foreign currency and keep the ruble excessively depreciated and thus discourage imports. Consequently, the desirable direction of trade reform in the FSU is to shift the role of trade policy from uncoordinated export restrictions, set primarily by local authorities, to a common tariff in trade with countries outside the CIS and free trade inside.[7] But it is understandable that such a trade reform will be undertaken only if all the CIS members introduce a far-reaching price liberalisation, at least to the same degree as Russia attempted to do on 1 July 1992, and coordinate fiscal and monetary policies stabilising inflation so that the domestic price base is predictable.[8] It is simply more plausible to set up a common tariff when prices in the participating states are stabilised or when they are evenly moving in the same direction. Under such circumstances the common tariff would generate a trade creation effect, which means an increase in inter-state output and trade resulting from formation of the customs union area.

Along with trade reform, which is essential for diminishing the need for indirect transfers, currency reform will ensure full convertibility of current accounts. This would remove payment bottlenecks and make compensating transfers obsolete. For this purpose the state authorities of the CIS signed the Bishkek Agreement of 9 October 1992, which calls for sustaining the ruble zone, bilateral clearing of interrepublican payment balances, and formation of an Inter-State Bank to facilitate the payment system. The Agreement is the first legislative step in the right direction, but without full implementation it will remain as ineffective as many other intra-CIS agreements; so far its major provisions remain in the sphere of wishful thinking. Only far-reaching, market-oriented reforms can ultimately ease the pressures to sustain indirect transfers among the states of the former Soviet Union.

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1 The arrangements of the EC with African and Caribbean sugar producers under the so-called sugar protocol of the Lome Conventions or 'surprix' arrangements to overprice francophone African exports of raw materials to France and to overprice French manufactured exports to the African countries in the post-colonial period provide evidence for such transfers in market economies (Kreinin, 1973; Ndongko, 1973; Koester & Hermann, 1987).

- 2 The term 'distortions' is related solely to domestic distortions, i.e. deviations of domestic prices from world market prices. This does not exclude the possibility that world market prices might be distorted as well, for instance, because of domestic surpluses dumped on world markets.
- 3 This ratio seems plausible in the light of estimates by the Institute of International Finance (1990) of the price of oil which the FSU charged to CMEA members. The Institute estimated a barrel price of US\$5-7 compared with the world market price of US\$18.
- 4 As Table 3 implies, Russia's total net subsidising position was almost as large on the side of accepting overpriced imports of non-oil and gas products as it was on the side of underpriced exports of oil and gas. However, the choice of the official Gosbank exchange rate at 0.60 rubles per US\$ had a strong impact on that balance. If the chosen rate were more realistic, i.e. assuming a much weaker ruble, the magnitude of subsidies via underpriced exports of oil versus overpriced imports of other products would be much larger.
- 5 According to an estimate by the Institute of Forecasting of the Russian Academy of Sciences, currently about 30% of oil deliveries from Russia to other republics are based on unreported, barter transactions between enterprises. This tendency leads to a large overestimation of the trade shock between the republics when it is computed on the basis of official data.
- 6 See Central Bank of Russia, Interstate Payments (Moscow, November 1992).
- 7 Michalopoulos & Tarr (1992, p. 6) argue that some export licenses and quotas, at least temporarily, are justifiable in order to prevent re-exporting. But these instruments are determined by local authorities and are not centrally coordinated in practice. Therefore, if local authorities wish to continue with such instruments they will allow re-exporting anyway by eagerly granting export licences.
- 8 Recently, several authors have advocated a very strong tariff-based protectionism for the CIS. Specifically, McKinnon (1991) suggests protecting negative value added industries in this way on an interim basis, and Corden (1992) proposes this policy as a special case of the infant industry argument. There are, however, no ways to judge whether any of the protected industries will truly improve their economic efficiency in this way. Most of them have received protection in the form of either direct or

indirect transfers over many years of central planning. This policy did not improve the economic efficiency of the technologically stagnant Soviet industries.

TABLE 1 AVERAGE WORLD MARKET TO DOMESTIC MARKET PRICE RATIOS IN INTER-REPUBLICAN TRADE BY MAJOR COMMODITY GROUPS, 1990[a]

Sectors	Ratio
Oil and gas	2.70
Electric energy	1.50
Coal	0.94
Other energy	0.71
Ferrous metals	1.18
Non-ferrous metals	1.66
Chemicals and products	0.83
Machine building	1.11
Wood and paper products	0.72
Construction materials	0.97
Light industry	0.33
Food industry	0.38
Other industrial branches	0.63
Agricultural products (unprocessed)	0.45
Communications, transport and services	1.11
Total trade	0.97

a Weighted by individual republics' trade volumes.

Source: Appendix Table A1.

TABLE 2 INDIRECT TRANSFERS IN INTER-REPUBLICAN TRADE FOR ALL FSU REPUBLICS IN 1990 BY MAJOR COMMODITY GROUPS (IN MILLION CURRENT RUBLES)

Legend for Chart:

- A - Sectors
- B - Indirect transfers through: Subsidised exports
- C - Indirect transfers through: % of total
- D - Indirect transfers through: Overpriced imports
- E - Indirect transfers through: % of total

A	B	C	D	E
Oil and gas	22 552	61.5	--	--
Electric energy	966	2.6	--	--
Coal	--	--	70	0.2
Other energy (peat)	--	--	4	0.0
Ferrous metals	2 462	6.7	--	--
Non-ferrous metals	3 878	10.6	--	--
Chemicals and products	--	--	3 216	7.5

Machine building	6 333	17.3	--	--
Wood and paper products	--	--	1 432	3.3
Construction materials	--	--	78	0.2
Light industry	--	--	19 203	44.8
Food industry	--	--	13 372	31.2
Other industrial branches	--	--	2 017	4.7
Agricultural products (unprocessed)	--	--	3 489	8.1
Communications, transport and services	474	1.3	--	--
Sum of transfers	36 665	100.0	42 881	100.0

Data source: Appendix Table A1.

TABLE 3 REGIONAL STRUCTURE OF INDIRECT TRANSFERS, 1990, IN MILLIONS OF CURRENT RULES[a]

Legend for Chart:

- A - Transfer donor through: Underpriced exports of oil & gas
- B - Transfer donor through: Overpriced imports of non-oil & gas
- C - Transfer recipient through: Overpriced exports of non-oil & gas
- D - Transfer recipient through: Underpriced imports of oil and gas
- E - Net transfer position[b]: Oil & gas
- F - Net transfer position[b]: Non-oil & gas
- G - Net transfer position[b]: Total
- H - Net transfers as% of GDP

	A	B	C	D
	E	F	G	H
Russia	15 811	13 867	4 071	3 166
	12 645	9 796	22 441	3.67
Ukraine	430	3 500	2 780	6 979
	-6 549	720	-5 829	(3.61)
Belorussia	1 564	1 281	2 745	3 699
	-2 135	-1 464	-3 599	(8.91)
Uzbekistun	833	2 274	2 113	1 403
	-570	161	-409	(1.26)
Kazakhstan	1 672	1 748	1 666	1 984
	-312	82	-230	(0.50)
Georgia	5	917	2 877	432

	-427	-1 960	-2 387	(16.02)
Azerbaijan	936	845	2 465	906
	30	-1 620	-1 590	(10.09)
Lithuania	285	333	1 479	1 480
	-1 195	-1 146	-2 341	(17.09)
Moldavia	0	577	3 148	-532
	-532	-2 571	-3 103	(24.05)
Latvia	7	397	1 096	559
	-552	-699	-1 251	(10.43)
Kirghizia	24	605	516	336
	-312	89	-223	(2.72)
Tadzhikistan	22	617	756	339
	-317	-139	-456	(6.08)
Armenia	0	910	1 439	350
	-350	-529	-879	(9.16)
Turkmenia	963	583	659	98
	865	-76	789	10.81
Estonia	0	329	948	287
	-287	-619	-906	(12.08)

a There were no cases of overpriced exports (imports) of oil and gas and underpriced exports (imports) of non-oil and gas products.

b Positive sign indicates a net donor, negative sign a net recipient of transfer.

Source: Calculations based on data in Appendix Table A1; GNP data: Plan Econ Report, 11-13, 24 March 1992.

TABLE 4 CLASSIFICATION OF INDIRECT TRANSFERS POSITION OF THE REPUBLICS BASED ON UNDERPRICED TRADE IN OIL AND GAS, AND OVERPRICED TRADE IN NON-OIL AND GAS GOODS, 1990

Underpriced Trade in Oil and Gas		
(Exporters)	Donors (Importers)	Recipients
Donors (Importers)	Russia	Ukraine Uzbekistan Kazakhstan

Overpriced			Kirghizia
Trade in	Recipients	Turkmenia	Belorussia
Non-oil	(Exporters)	Azerbaijan	Georgia
and Gas	Lithuania		
			Moldavia
			Latvia
			Tadzhikistan
			Armenia
			Estonia

Source: Based on data in Table 3.

TABLE A1: INTERREPUBLICAN EXPORTS AND IMPORTS IN DOMESTIC (DP) AND WORLD MARKET (WP) PRICES, 1990 DATA (MILLIONS OF CURRENT RUBLES)

Legend for Chart:

A - Russia: Exports, DP
 B - Russia: Exports, WP
 C - Russia: Exports, WP/DP
 D - Russia: Imports, DP
 E - Russia: Imports, WP
 F - Russia: Imports, WP/DP
 G - Ukraine: Exports, DP
 H - Ukraine: Exports, WP
 I - Ukraine: Exports, WP/DP
 J - Ukraine: Imports, DP
 K - Ukraine: Imports, WP
 L - Ukraine: Imports, WP/DP

	A	B	C
	D	E	F
	G	H	I
	J	K	L
Oil and gas	8 612	24 423	2.84
	2 094	5 260	2.51
	337	767	2.28
	3 797	10 776	2.84
Electric energy	599	899	1.50
	553	830	1.50
	167	250	1.50
	189	283	1.50
Coal	496	464	0.94
	289	270	0.93
	237	222	0.94

	313	293	0.94
Other energy (peat)	1	1	1.00
	10	7	0.70
	0	0	--
	2	2	1.00
Ferrous metals	5 832	6 768	1.16
	5 913	7 083	1.20
	6 063	7 336	1.21
	2 453	2 836	1.16
Non-ferrous metals	3 323	5 540	1.67
	1 630	2 698	1.66
	869	1 448	1.67
	2 019	3 367	1.67
Chemicals and products	9 145	7 596	0.83
	5 590	4 654	0.83
	3 051	2 614	0.86
	4 367	3 610	0.83
Machine building	26 091	28 899	1.11
	20 720	22 928	1.11
	15 500	17 344	1.12
	13 720	15 178	1.11
Wood and paper products	3 724	2 727	0.73
	695	485	0.70
	369	262	0.71
	1 459	1 072	0.73
Construction materials	1 118	1 137	1.02
	810	768	0.95
	616	560	0.91
	414	419	1.01
Light industry	7 502	2 272	0.30
	11 154	4 097	0.37
	2 161	690	0.32
	5 598	1 812	0.32
Food industry	2 443	1 114	0.46
	12 882	4 625	0.36
	6 127	2 801	0.46
	1 770	681	0.38

Other industrial branches	2 648	1 646	0.62
	1 445	948	0.66
	976	592	0.61
	1 403	819	0.58
Agricultural products (unprocessed)	887	442	0.50
	2 724	1 070	0.39
	1 529	724	0.47
	500	238	0.48
Communications, transport and services	2 290	2 522	1.10
	774	860	1.11
	317	359	1.13
	984	1 084	1.10
Non-oil and gas trade	66 098	62 027	0.94
	65 190	51 323	0.79
	37 982	35 202	0.93
	35 192	31 692	0.90
Total trade	74 710	86 450	1.16
	67 284	56 583	0.84
	38 319	35 969	0.94
	38 989	42 468	1.09

Legend for Chart:

- A - Belorussia: Exports, DP
- B - Belorussia: Exports, WP
- C - Belorussia: Exports, WP/DP
- D - Belorussia: Imports, DP
- E - Belorussia: Imports, WP
- F - Belorussia: Imports, WP/DP
- G - Uzbekistan: Exports, DP
- H - Uzbekistan: Exports, WP
- I - Uzbekistan: Exports, WP/DP
- J - Uzbekistan: Imports, DP
- K - Uzbekistan: Imports, WP
- L - Uzbekistan: Imports, WP/DP

A	B	C
D	E	F
G	H	I
J	K	L

Oil and gas	1 204	2 768	2.30
	1 697	5 396	3.18

	592	1 425	2.41
	886	2 289	2.58
Electric energy	42	62	1.48
	154	231	1.50
	207	311	1.50
	172	258	1.50
Coal	0	0	--
	40	38	0.95
	8	8	1.00
	48	45	0.94
Other energy (peat)	0	0	--
	1	1	1.00
	0	0	--
	0	0	--
Ferrous metals	189	225	1.19
	1 333	1 569	1.18
	99	121	1.22
	647	751	1.16
Non-ferrous metals	78	131	1.68
	410	685	1.67
	429	711	1.66
	409	679	1.66
Chemicals and products	2 128	1 754	0.82
	1 980	1 615	0.82
	793	606	0.76
	973	806	0.83
Machine building	7 856	8 498	1.08
	5 045	5 615	1.11
	1 051	1 325	1.26
	3 292	3 438	1.04
Wood and paper products	442	299	0.68
	408	311	0.76
	15	12	0.80
	512	368	0.72
Construction materials	290	253	0.87
	177	184	1.04
	71	69	0.97
	192	193	1.01

Light industry	3 270	990	0.30
	1 552	488	0.31
	3 384	1 542	0.46
	1 938	580	0.30
Food industry	984	479	0.49
	909	372	0.41
	810	306	0.38
	1 247	571	0.46
Other industrial branches	299	240	0.80
	359	210	0.58
	73	47	0.64
	334	197	0.59
Agricultural products (unprocessed)	228	105	0.46
	468	216	0.46
	405	147	0.36
	932	511	0.55
Communications, transport and services	214	238	1.11
	306	328	1.07
	232	261	1.13
	280	309	1.10
Non-oil and gas trade	16 020	13 275	0.83
	13 144	11 863	0.90
	7 577	5 464	0.72
	10 978	8 704	0.79
Total trade	17 224	16 043	0.93
	14 841	17 259	1.16
	8 169	6 889	0.84
	11 864	10 993	0.93

Legend for Chart:

- A - Kazakhstan: Exports, DP
- B - Kazakhstan: Exports, WP
- C - Kazakhstan: Exports, WP/DP
- D - Kazakhstan: Imports, DP
- E - Kazakhstan: Imports, WP
- F - Kazakhstan: Imports, WP/DP
- G - Georgia: Exports, DP
- H - Georgia: Exports, WP
- I - Georgia: Exports, WP/DP

J - Georgia: Imports, DP
 K - Georgia: Imports, WP
 L - Georgia: Imports, WP/DP

	A	B	C
	D	E	F
	G	H	I
	J	K	L
Oil and gas	783	2 455	3.14
	1 177	3 161	2.69
	5	10	2.00
	284	716	2.52
Electric energy	233	350	1.50
	420	630	1.50
	13	19	1.46
	54	81	1.50
Coal	304	284	0.93
	156	146	0.94
	5	4	0.80
	15	14	0.93
Other energy (peat)	0	0	--
	1	0	0.00
	0	0	--
	0	0	--
Ferrous metals	839	926	1.10
	939	1 098	1.17
	284	341	1.20
	411	486	1.18
Non-ferrous metals	480	795	1.66
	255	424	1.66
	30	46	1.53
	97	162	1.67
Chemicals and products	961	785	0.82
	1 522	1 298	0.85
	323	252	0.78
	495	413	0.83
Machine building	746	895	1.20
	4 704	5 247	1.12
	757	896	1.18

	1 323	1 401	1.06
Wood and paper products	22	17	0.77
	691	480	0.69
	59	41	0.69
	227	166	0.73
Construction materials	114	136	1.19
	296	280	0.95
	47	47	1.00
	101	107	1.06
Light industry	1 395	346	0.25
	1 982	603	0.30
	1 225	367	0.30
	809	265	0.33
Food industry	561	272	0.48
	1 232	467	0.38
	2 340	491	0.21
	516	228	0.44
Other industrial branches	75	59	0.79
	400	278	0.69
	149	94	0.63
	190	122	0.64
Agricultural products (unprocessed)	1 732	909	0.52
	227	88	0.39
	397	139	0.35
	287	148	0.52
Communications, transport and services	198	218	1.10
	315	348	1.10
	92	104	1.13
	140	155	1.11
Non-oil and gas trade	7 660	5 994	0.78
	13 137	11 389	0.87
	5 719	2 842	0.50
	4 665	3 748	0.80
Total trade	8 443	8 449	1.00
	14 314	14 550	1.02
	5 724	2 852	0.50
	4 949	4 464	0.90

Legend for Chart:

A - Azerbaijan: Exports, DP
 B - Azerbaijan: Exports, WP
 C - Azerbaijan: Exports, WP/DP
 D - Azerbaijan: Imports, DP
 E - Azerbaijan: Imports, WP
 F - Azerbaijan: Imports, WP/DP
 G - Lithuania: Exports, DP
 H - Lithuania: Exports, WP
 I - Lithuania: Exports, WP/DP
 J - Lithuania: Imports, DP
 K - Lithuania: Imports, WP
 L - Lithuania: Imports, WP/DP

	A	B	C
	D	E	F
	G	H	I
	J	K	L
Oil and gas	747	1 683	2.25
	428	1 334	3.12
	233	518	2.22
	879	2 359	2.68
Electric energy	46	70	1.52
	16	25	1.56
	200	300	1.50
	99	148	1.49
Coal	0	0	--
	5	5	1.00
	0	0	--
	14	13	0.93
Other energy (peat)	0	0	--
	0	0	--
	0	0	--
	0	0	--
Ferrous metals	71	84	1.18
	219	266	1.21
	21	19	0.90
	306	357	1.17
Non-ferrous metals	80	134	1.67
	101	168	1.66

	7	11	1.57
	158	263	1.66
Chemicals and products	518	427	0.82
	488	430	0.88
	370	298	0.81
	735	611	0.83
Machine building	936	958	1.02
	1 119	1 126	1.01
	1 832	1 833	1.00
	2 069	2 417	1.17
Wood and paper products	15	9	0.60
	117	84	0.72
	157	120	0.76
	183	135	0.74
Construction materials	63	54	0.86
	94	94	1.00
	66	63	0.95
	113	105	0.93
Light industry	1 366	442	0.32
	708	208	0.29
	1 394	432	0.31
	664	189	0.28
Food industry	1 749	365	0.21
	501	247	0.49
	720	341	0.47
	270	103	0.38
Other industrial branches	254	161	0.63
	189	118	0.62
	48	36	0.75
	126	86	0.68
Agricultural products (unprocessed)	134	48	0.36
	146	71	0.49
	205	74	0.36
	118	53	0.45
Communications, transport and services	125	141	1.13
	117	133	1.14
	96	108	1.13
	289	328	1.13

Non-oil and gas trade	5 358	2 893	0.54
	3 819	2 974	0.78
	5 116	3 637	0.71
	5 143	4 810	0.94
Total trade	6 105	4 576	0.75
	4 247	4 308	1.01
	5 349	4 155	0.78
	6 022	7 169	1.19

Legend for Chart:

A - Moldavia: Exports, DP
 B - Moldavia: Exports, WP
 C - Moldavia: Exports, WP/DP
 D - Moldavia: Imports, DP
 E - Moldavia: Imports, WP
 F - Moldavia: Imports, WP/DP
 G - Latvia: Exports, DP
 H - Latvia: Exports, WP
 I - Latvia: Exports, WP/DP
 J - Latvia: Imports, DP
 K - Latvia: Imports, WP
 L - Latvia: Imports, WP/DP

	A	B	C
	D	E	F
	G	H	I
	J	K	L
Oil and gas	0	0	--
	425	957	2.25
	6	13	2.17
	447	1 006	2.25
Electric energy	22	33	1.50
	17	26	1.53
	88	131	1.49
	111	167	1.50
Coal	0	0	--
	119	111	0.93
	0	0	--
	10	9	0.90
Other energy (peat)	0	0	--

	0	0	--
	0	0	--
	0	0	--
Ferrous metals	59	72	1.22
	286	335	1.17
	95	115	1.21
	347	415	1.20
Non-ferrous metals	0	0	--
	150	251	1.67
	13	22	1.69
	139	232	1.67
Chemicals and products	206	166	0.81
	581	475	0.82
	646	534	0.83
	596	478	0.80
Machine building	978	974	1.00
	1 504	1 705	1.13
	1 376	1 566	1.14
	1 588	1 795	1.13
Wood and paper products	81	58	0.72
	205	156	0.76
	115	78	0.68
	136	100	0.74
Construction materials	59	63	1.07
	117	110	0.94
	69	50	0.72
	65	68	1.05
Light industry	1 166	366	0.31
	769	263	0.34
	888	314	0.35
	617	184	0.30
Food industry	2 621	661	0.25
	257	118	0.46
	1 082	589	0.54
	231	80	0.35
Other industrial branches	198	117	0.59
	188	118	0.63
	249	139	0.56

	159	109	0.69
Agricultural products	427	151	0.35
(unprocessed)	150	73	0.49
	87	32	0.37
	107	50	0.47
Communications, transport	39	43	1.10
and services	223	250	1.12
	315	358	1.14
	159	179	1.13
Non-oil and gas trade	5 853	2 705	0.46
	4 567	3 990	0.87
	5 022	3 926	0.78
	4 264	3 867	0.91
Total trade	5 853	2 705	0.46
	4 992	4 947	0.99
	5 028	3 939	0.78
	4 711	4 873	1.03

Legend for Chart:

A - Kirghizia: Exports, DP
 B - Kirghizia: Exports, WP
 C - Kirghizia: Exports, WP/DP
 D - Kirghizia: Imports, DP
 E - Kirghizia: Imports, WP
 F - Kirghizia: Imports, WP/DP
 G - Tadzhikistan: Exports, DP
 H - Tadzhikistan: Exports, WP
 I - Tadzhikistan: Exports, WP/DP
 J - Tadzhikistan: Imports, DP
 K - Tadzhikistan: Imports, WP
 L - Tadzhikistan: Imports, WP/DP

	A	B	C
	D	E	F
	G	H	I
	J	K	L
Oil and gas	10	34	3.40
	269	605	2.25
	10	32	3.20
	271	610	2.25

Electric energy	67	101	1.51
	34	51	1.50
	63	94	1.49
	71	106	1.49
Coal	22	21	0.95
	38	36	0.95
	5	4	0.80
	8	7	0.88
Other energy (peat)	0	0	--
	0	0	--
	0	0	--
	0	0	--
Ferrous metals	7	9	1.29
	167	189	1.13
	4	4	1.00
	110	129	1.17
Non-ferrous metals	145	235	1.62
	96	156	1.63
	298	496	1.66
	193	322	1.67
Chemicals and products	23	19	0.83
	323	269	0.83
	119	91	0.76
	322	258	0.80
Machine building	882	1 099	1.25
	879	906	1.03
	228	242	1.06
	796	859	1.08
Wood and paper products	4	2	0.50
	114	80	0.70
	3	2	0.67
	124	88	0.71
Construction materials	13	13	1.00
	69	64	0.93
	29	28	0.97
	54	54	1.00
Light industry	640	174	0.27
	602	200	0.33

	1 061	406	0.38
	558	158	0.28
Food industry	508	182	0.36
	248	103	0.42
	405	144	0.36
	424	170	0.40
Other industrial branches	21	16	0.76
	71	43	0.61
	4	3	0.75
	105	62	0.59
Agricultural products (unprocessed)	87	31	0.36
	167	93	0.56
	92	32	0.35
	182	97	0.53
Communications, transport and services	19	20	1.05
	102	114	1.12
	59	65	1.10
	142	161	1.13
Non-oil and gas trade	2 436	1 920	0.79
	2 910	2 305	0.79
	2 367	1 611	0.68
	3 088	2 471	0.80
Total trade	2 446	1 954	0.80
	3 179	2 910	0.92
	2 377	1 643	0.69
	3 359	3 081	0.92

Legend for Chart:

- A - Armenia: Exports, DP
- B - Armenia: Exports, WP
- C - Armenia: Exports, WP/DP
- D - Armenia: Imports, DP
- E - Armenia: Imports, WP
- F - Armenia: Imports, WP/DP
- G - Turkmenia: Exports, DP
- H - Turkmenia: Exports, WP
- I - Turkmenia: Exports, WP/DP
- J - Turkmenia: Imports, DP
- K - Turkmenia: Imports, WP
- L - Turkmenia: Imports, WP/DP

	A	B	C
	D	E	F
	G	H	I
	J	K	L
Oil and gas	0	0	--
	273	623	2.28
	696	1 659	2.38
	79	177	2.24
Electric energy	6	9	1.50
	18	27	1.50
	67	101	1.51
	10	15	1.50
Coal	0	0	--
	13	12	0.92
	0	0	--
	5	5	1.00
Other energy (peat)	0	0	--
	0	0	--
	0	0	--
	0	0	--
Ferrous metals	14	17	1.21
	208	249	1.20
	3	4	1.33
	106	122	1.15
Non-ferrous metals	85	137	1.61
	87	143	1.64
	6	10	1.67
	9	15	1.67
Chemicals and products	204	175	0.86
	295	239	0.81
	147	152	1.03
	203	169	0.83
Machine building	772	790	1.02
	850	843	0.99
	35	37	1.06
	959	1 192	1.24
Wood and paper products	9	6	0.67

	100	72	0.72
	0	0	--
	97	64	0.66
Construction materials	44	47	1.07
	57	49	0.86
	28	31	1.11
	50	43	0.86
Light industry	1 483	484	0.33
	889	275	0.31
	1 083	541	0.50
	551	162	0.29
Food industry	404	68	0.17
	368	168	0.46
	206	112	0.54
	445	179	0.40
Other industrial branches	376	230	0.61
	199	134	0.67
	1	1	1.03
	180	114	0.63
Agricultural products (unprocessed)	11	4	0.36
	142	74	0.52
	124	44	0.35
	132	70	0.53
Communications, transport and services	19	21	1.11
	217	247	1.14
	74	83	1.12
	98	112	1.14
Non-oil and gas trade	3 428	1 989	0.58
	3 442	2 532	0.74
	1 773	1 114	0.63
	2 844	2 261	0.80
Total trade	3 428	1 989	0.58
	3 715	3 155	0.85
	2 469	2 773	1.12
	2 923	2 438	0.83

Legend for Chart:

A - Estonia: Exports, DP

B - Estonia: Exports, WP
 C - Estonia: Exports, WP/DP
 D - Estonia: Imports, DP
 E - Estonia: Imports, WP
 F - Estonia: Imports, WP/DP
 G - All republics: Exports, DP
 H - All republics: Exports, WP
 I - All republics: Exports, WP/DP
 J - All republics: Imports, DP
 K - All republics: Imports, WP
 L - All republics: Imports, WP/DP

	A	B	C
	D	E	F
	G	H	I
	J	K	L
Oil and gas	0	0	--
	229	516	2.25
	13 235	35 787	2.70
	13 235	35 785	2.70
Electric energy	112	168	1.50
	13	19	1.46
	1 932	2 898	1.50
	1 931	2 897	1.50
Coal	0	0	--
	3	3	1.00
	1 077	1 007	0.94
	1 076	1 007	0.94
Other energy (peat)	13	9	0.69
	0	0	--
	14	10	0.71
	14	10	0.71
Ferrous metals	6	7	1.17
	140	163	1.16
	13 586	16 048	1.18
	13 585	16 048	1.18
Non-ferrous metals	8	13	1.63
	97	163	1.68
	5 851	9 729	1.66
	5 850	9 728	1.66

Chemicals and products	296	245	0.83
	460	388	0.84
	18 930	15 714	0.83
	18 930	15 713	0.83
Machine building	542	559	1.03
	1 015	1 258	1.24
	59 582	65 915	1.11
	59 583	65 908	1.11
Wood and paper products	128	78	0.61
	74	51	0.69
	5 143	3 711	0.72
	5 142	3 712	0.72
Construction materials	29	27	0.93
	46	42	0.91
	2 656	2 578	0.97
	2 655	2 580	0.97
Light industry	854	303	0.35
	481	172	0.36
	28 872	9 669	0.33
	28 872	9 656	0.33
Food industry	632	295	0.47
	291	107	0.37
	21 592	8 220	0.38
	21 591	8 219	0.38
Other industrial branches	70	43	0.61
	94	66	0.70
	5 441	3 424	0.63
	5 442	3 424	0.63
Agricultural products (unprocessed)	42	16	0.38
	104	47	0.45
	6 387	2 898	0.45
	6 386	2 899	0.45
Communications, transport and services	168	190	1.13
	111	123	1.11
	4 257	4 731	1.11
	4 257	4 731	1.11
Non-oil and gas trade	2 900	1 952	0.67
	2 929	2 600	0.89

	175 309	146 551	0.84
	175 312	146 529	0.84
Total trade	2 900	1 952	0.67
	3 158	3 116	0.99
	188 544	182 338	0.97
	188 547	182 314	0.97

Source: Own calculations based on the data from: The World Bank Statistical Handbook: States of the Former USSR; and Goskomstat SSSR.

References

Central Bank of Russia, Interstate Payments. Moscow, November 1992.

W. Max Corden, 'Integration and Trade Policy Issues in the Ex-Soviet Union', The World Bank, Policy Research Working Paper, No. 915, Washington, DC 1992.

Stanley Fischer, 'Russia and the Soviet Union then and Now', NBER Working Paper, No. 4077, May 1992.

I. S. Frantseva, 'The Difficult Path to Self-Identity: Disintegration of the Union and Inter-Republican Relations', Studies on Soviet Economic Development, 3, 1, 1992.

Goskomstat SSR, Information-Publication Centre, Osnovnye Pokazateli Balansov Narodnogo Khozyaistva SSR i Soyuznykh Respublik, 1990.

Alexander G. Granberg, 'The Economic Mechanism of Inter-Republic and Inter-Regional Relations', Problems of Economics, 33, 3, 1990, pp. 77-93.

Alexander G. Granberg, 'Mezhrepublikańskie ekonomicheskie svyazi', Vestnik Rossiiskoi Akademii Nauk, 2, 1992, pp. 3-14.

Barry Ickes & Rudi Ryterman, 'Entry without Exit: The Effects of Socialist Selection on the Soviet Industrial Structure', Paper presented at the Annual Conference of the American Economic Association, Anaheim, CA, 5 January 1993, mimeo.

Institute of International Finance, 'Central and East European Trade With the Soviet Union: Where Do We Go From Here?', Mimeo, September 1990.

International Monetary Fund, The World Bank, Organization for Economic Cooperation and Development, European Bank for Reconstruction and Development; eds, A Study of the Soviet Economy, 1 (Paris, February 1991, henceforth SSE).

Ulrich Koester & Roland Herrmann The EC-ACP Convention of Lome (Kiel, Wissenschaftsverlag Vauk, 1987).

Mordechai E. Kreinin, 'Some Economic Consequences of Reverse Preferences', Journal of Common Market Studies, 11, 1973, pp. 161-172.

Rolf Langhammer, 'Salient Features of Trade among Former Soviet Union Republics: Facts, Flows and Findings', Aussenwirtschaft, 47, 1992, pp. 253-277.

Rolf Langhammer, Matthew Sagers & Matthias Lucke, 'Regional Distribution of the Russian Federation's Export Earnings Outside the Former Soviet Union and Its Implications for Regional Economic Autonomy', Post-Soviet Geography, 23, 10, December 1992, pp. 617-634.

Ronald McKinnon, *The Order of Economic Liberalization*, (Baltimore, MD, Johns Hopkins University Press 1991);

Constantine Michalopoulos & David Tarr, 'Trade and Payments Arrangements for States of the Former USSR', *The World Bank, Studies of Economies in Transformation*, 2, Washington, DC, 1992.

Wilfred A. Ndongko, 'The Economic Origins of the Association of Some African States with the European Community', *African Studies Review*, 16, 1973, pp. 219-232.

Nezavisimaya gazeta 25 November 1992, p. 3.

James H. Noren & Robin Watson, 'Interrepublican Economic Relations After the Disintegration of the USSR', *Soviet Economy*, 8, 2, 1992, pp. 89-129.

PlanEcon Report, 'Aggregate Economic Developments in the Fifteen Former Soviet Republics, 1980-91', 8, 11-12-13, 24 March 1992.

Lucjan T. **Orlowski**, 'Direct Transfers between the Former Soviet Union Central Budget and the Republics: Past Evidence and Current Implications', *The Kiel Institute of World Economics, Working Paper*, No. 542, November 1992.

V. E. Seliverstov, 'Integration Links Between the Union Republics and Their Analysis on the Basis of Balances Between Regions and Sectors', *Matekon*, 28, 3, 1992, pp. 50-63.

Statistical Handbook. States of the Former USSR, *The World Bank, Studies of Economies in Transformation*, 3, (Washington, DC, 1992).

David G. Tan., 'How Moving to World Prices Affects the Terms of Trade in Fifteen Countries of the Former Soviet Union', *The World Bank, Policy Research Working Paper*, No. WPS 1074, January 1993.

Vestnik statistiki 3/4, 1990.