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***DEPARTURES FROM THE RUBLE ZONE:  
THE IMPLICATIONS OF ADOPTING  
INDEPENDENT CURRENCIES***

**BY**

***Linda S. Goldberg,  
Barry W. Ickes, and  
Randi Ryterman***

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**NEW YORK UNIVERSITY  
FACULTY OF ARTS AND SCIENCE  
DEPARTMENT OF ECONOMICS  
WASHINGTON SQUARE  
NEW YORK, N.Y. 10003**

## **Departures from the Ruble Zone: The Implications of Adopting Independent Currencies**

Linda S. Goldberg  
New York University and NBER  
Department of Economics  
269 Mercer Street  
New York, N.Y. 10003

Barry W. Ickes  
Department of Economics  
The Pennsylvania State University  
University Park, PA 16802

Randi Ryterman  
The World Bank  
1818 H Street NW  
Washington DC 20433

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### **Abstract**

In this paper, we analyze the consequences for countries of the former Soviet Union (FSU) of departing from the ruble zone. Traditional arguments for independent currencies -- in particular, the potential role of the exchange rate for output stabilization -- currently do not apply to countries of the FSU. This fact would seem to weaken the case for departures from the ruble zone. However, using arguments derived from the public-finance literature, we show that departures from the ruble zone have important implications for the pace and direction of continued economic reforms across the FSU. Moreover, we argue that adopting an independent currency can be an important device for signalling radical economic reform. These public-finance and signalling arguments suggest that radical reformers should adopt independent currencies.

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## I. INTRODUCTION

Russia and the other sovereign countries of the former Soviet Union (FSU) have been faced with the choice between remaining in a common ruble zone and introducing distinct national currencies. Possessing an independent currency usually is perceived as an important element of national sovereignty. An independent currency is not only seen as a source of national pride; it also may enable a country to pursue an independent monetary policy. In the case of countries seeking to establish independent identities outside of the FSU, the temptation to issue a new currency is very strong. This is demonstrated by the range of independent currency initiatives already introduced by Estonia, Ukraine, Belarus, Latvia, and Lithuania.

A country also may depart from the ruble zone because it seeks to follow a different schedule of introducing reform initiatives than that adopted by Russia. The net economic benefits to a country will depend on a country's characteristics, including the extent to which economic reforms already had been introduced within the country and by a country's trading partners. While a sovereign currency does provide a potent symbol of independence, in the short run for some countries the economic and distributional costs associated with introducing a national currency may outweigh the pure currency sovereignty benefits. The extent of these costs depend on the timing of the currency introduction and the extent of reforms undertaken. Moreover, introduction of an independent currency, if properly timed, can reinforce the reform trajectory on which a country has embarked.

Our conclusions regarding the extent of the economic consequences of adopting independent currencies are based on analysis of: (i) the relevant extent of economic interdependence within the FSU; (ii) the pattern of implicit inter-republican transfers from trade, payments, and monetary systems; (iii) the likely importance of bilateral exchange rates as automatic output stabilizers; (iv) the likely role of seignorage rents in financing the fiscal expenditures of independent republics;<sup>1</sup> and (v) the extent to which reforms already have been introduced and the speed with which they are implemented following the currency reform.

We argue that traditional arguments for adopting independent currencies -- in particular, the role of the exchange rate as a stabilizing mechanism -- currently do not apply to the countries of the FSU. This fact would seem to weaken the case for departures from the ruble zone. However, we then turn to arguments derived from the public-finance literature and show that the timing of departure from the ruble zone has

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<sup>1</sup>Seignorage is the revenue a government obtains by printing money.

important implications for the pace and direction of continued economic reforms across the FSU. Moreover, we argue that adopting an independent currency can be an important device for signaling and reinforcing radical economic reform.

To provide the context for this analysis, Section II presents the traditional economic arguments for the introduction of independent currencies. The "traditional" optimal currency area literature emphasizes the state of the distinct economies considering the union and the potential for a flexible exchange rate to stabilize output across countries in response to shocks. Typically these arguments are posed in terms of commonality of shocks, inter-regional labor mobility, and automatic stabilizers through fiscal federalist agencies.

This traditional logic for independent currencies does not provide persuasive arguments for new currency introductions for countries of the former Soviet Union. We argue that, despite the fact that the typical reference criterion for introducing independent currencies may be satisfied, these criteria are irrelevant since *the exchange rate will not be able to effectively perform the task of short-term stabilization to which it is assigned*. Although the short-term effectiveness of the exchange-rate instrument may increase when broader reform initiatives take hold, at the current stage of economic transformation the bilateral exchange rates will not effectively stabilize output across countries of the FSU.

In Section III we consider alternative criteria for introducing independent currencies based on a "public finance" approach. These criteria previously have been applied to the issue of country participation in the European Exchange Rate Mechanism (ERM), but also will have a counterpart in application to the FSU. This public finance approach emphasizes the cross-country competition for the gains from monetary coordination, most notably for seignorage (inflation tax) revenues. In the present context, we interpret the public finance approach in broader terms, whereby participation in a currency union may facilitate the continuance of a pattern of fiscal transfers and political influence within a region that otherwise would be sharply altered. The decision of whether to introduce an independent currency is based on whether a country will have, on balance, larger fiscal/output gains upon departure and thereafter as compared with their situation within the currency zone.

We show how the country-specific net economic implications of introducing national currencies depends on the pattern of implicit transfers across republics, which in turn depends on the extent of reforms already accomplished. Under some conditions, these implicit transfers will be lost with the introduction of national currencies. The monetary system is quite important since it reveals whether the former republics had been able to recover a "fair" allocation of seignorage rents and other credits under the unified ruble

zone. The system for inter-republican payments and settlements also is key, since it highlights the degree of autonomy that countries already had achieved in monetary control. However, one of the most important determinants of inter-republican transfers is through the distorted pricing system on inter-republican trade. The loss of transfers upon departure from the zone largely depends on whether reforms in pricing of inter-republican and extra-republican trade has occurred prior to a country's departure. This timing issue, i.e. whether the independent currencies are introduced before or after substantial movements toward world market pricing, also is critical for the political ramifications of the departures.

Section IV consolidates our conclusions about the economic effects of the introduction of national currencies and relates these conclusions to the political implications for reformers in different countries. Within a country, the political impetus for the continuation along the initial reform trajectory (i.e. the trajectory advocated by those initiating the withdrawal from the ruble zone) will depend on the depth of negative economic consequences of that withdrawal, as well as on the assignment of blame or responsibility for those negative consequences. Given these conclusions, Section V provides closing remarks about the potential political implications of the fracturing of the ruble zone in 1992 and 1993.

## **II. TRADITIONAL ARGUMENTS FOR INDEPENDENT CURRENCY CONTROL AND THE FSU**

**IIA. THE OPTIMAL CURRENCY AREA APPROACH:** The merits of departing from a common currency area often are argued in terms of the role of exchange-rate flexibility as an instrument of economic stabilization. According to the early "optimal currency area" literature associated with Mundell (1961), the importance of establishing an independent currency (with a flexible exchange rate) is closely associated with the significance of the exchange rate (or independent money supplies) as a tool of output stabilization.

Consider the case of two countries contemplating introducing monetary autonomy and flexible exchange rates in lieu of their pre-existing unified currency.<sup>2</sup> Both countries are subject to output disturbances which may be expansionary or contractionary. If these output disturbances across countries are positively correlated, the flexible bilateral exchange rate would not be an effective tool for output stabilization. In periods of unemployment, for example, neither country could take advantage of the automatic stabilizer function of the exchange rate since the exchange rate would not move to

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<sup>2</sup>Alternatively, the initial situation may be one of distinct currencies with non-discretionary monetary policy and fixed exchange rates.

successfully shift the relative prices of the products in each country to reallocate demand across countries and smooth output. By contrast, suppose the output disturbances were uncorrelated or negatively correlated. The flexible exchange rate could shift relative prices, reorient the demand for traded goods toward the depressed economy, and thereby operate as an effective stabilization tool.

One advantage of an independent currency is that it affords a country greater capacity to respond to shocks. The standard argument in the Mundell paradigm is that if nominal wages are rigid downward, then nominal exchange-rate flexibility may be desirable. Suppose that the economy experiences a negative demand shock. In the absence of nominal wage rigidity, the real wage would fall, and employment would remain the same. With nominal-wage rigidity, output and employment will fall. If the country had a flexible exchange rate, on the other hand, a depreciation of the domestic currency would, by its effect on the domestic price level, alleviate the distortions that result from nominal wage rigidity. More generally, independent currencies can aid adjustment when shocks have varied impacts across a group of countries.

Even if the exchange rate is a potentially effective stabilization tool, if it is a redundant tool then the case for independent currencies is weakened. This instrument could be redundant if there are alternative mechanisms leading to rapid adjustment to disturbances. For example, if labor and other productive inputs are mobile across countries or if there is an agreed upon mechanism for cross-country transfers (such as a type of fiscal federalist system), the exchange rate loses urgency as an instrument of regional stabilization.

The early literature on the size of common currency areas also emphasized that fewer currencies are preferable on pure efficiency grounds, since transaction costs increase in relation to the number of currencies in circulation. The extent and scope of these transaction costs further increase with the uncertainty surrounding the values of the respective currencies and the institutional restrictions on currency conversions.<sup>3</sup>

### IIB. REJECTING THE TRADITIONAL ARGUMENTS IN THE CURRENT CONTEXT OF THE FSU

According to the aforementioned arguments, a set of conditions determine whether a country should opt for a flexible exchange rate and monetary autonomy, over participation in a common currency area. In this section we consider whether this reasoning applies to the case of the FSU. In other words, how important, as instruments

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<sup>3</sup>In the FSU, the costs of transacting across borders in a single currency or in distinct national currencies depend on the type of inter-republican settlements and payments mechanisms. We return to this issue in Section III, when inter-republican payments regimes in the FSU are discussed.

of adjustment, are independent bilateral (or multilateral) exchange rates to the successor states of the FSU?<sup>4</sup>

It is tempting to tackle this question in terms of these now standard paradigms.<sup>5</sup> One then may conclude that on these grounds the FSU is a natural candidate for independent currencies along Mundellian lines: the various regions are quite diverse, and, hence, would optimally respond to shocks in different ways. The more industrialized parts of the FSU -- generally the western countries, Ukraine, Belarus, Russia -- would be affected differently by a demand shock than the more agricultural Central Asian countries.<sup>6</sup> Moreover, the seeming merits of independent currencies are reinforced by the observation that inter-regional labor flows are unlikely to automatically stabilize output shocks both within large countries like Russia, and across the FSU. With limited inter-regional labor mobility, this mechanism for equalizing real wages is not effective. The lack of labor mobility would appear to strengthen the need for an independent exchange rate as an instrument.

On the other hand, the degree of labor mobility may not even be an issue in our context since the problem of real wage rigidity across countries just is not present in the FSU. Since Russia liberalized prices on January 2, 1992, inflation has been quite variable throughout the FSU.<sup>7</sup> As a consequence, real wages can adjust on a regional basis quite rapidly. This means that real wage adjustment across republics can occur even without movements of labor. The lubricating effect of an independent currency on wages is just not needed in this case.<sup>8</sup>

This type of optimal currency area discussion generally presents the starting point for analyses of whether or not a country should participate in a currency area. However,

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<sup>4</sup>Goldberg (1993) analyzes the foreign exchange regime in Russia through the end of 1992.

<sup>5</sup>For the case of the FSU, Gros (1991) presents the standard arguments about commonality of shocks and labor mobility, without considering whether the exchange rate can effectively stabilize output.

<sup>6</sup>The presence of petroleum exports further complicates the matter. The proper external value of the common ruble for a large raw material exporter may be far different than for a producer of low quality machine tools. The latter country needs a depreciated currency to make its products competitive. The former would find its currency appreciating in real terms due to the demand for its exports. A natural conflict of interest appears. This is, of course, an important problem within Russia, as well as across the ruble zone.

<sup>7</sup>*Izvestiya*, 13 February 1993, reported on wage variation in Russia. According to the article, average per-capita income in the Far East region is almost double that in the North Caucasus. The lowest incomes were found in the North Caucasus, Kabardino-Balkariya, Mordoviya, the Moscow and Penza oblasts; and the highest levels in the Sakha and Komi republics, the Kamchatka, Magadan, Murmansk, Sakhalin, and Tyumen oblasts, and the city of Moscow. Moreover, it is important to note that wages are only one part of the total compensation package of workers. The other benefits to workers can vary considerably over time.

<sup>8</sup>One could argue that the differing rates of inflation are due primarily to the lack of central control of monetary policy in the ruble zone. Hence, the extent of nominal wage variability is due precisely to the lack of a workable FSU monetary policy.

there are important reasons for doubting its relevance in our context. The absence of other instruments for stabilization is not a sufficient condition for establishing that the exchange rate is itself an important and effective instrument of stabilization. Instead, *it must first be established that the exchange rate is an effective instrument, i.e. that it can and does have a timely effect on a country's output.* But, given the current state of reforms across the FSU, there are important reasons for doubting the immediate importance of independent currencies (and bilateral exchange rates) as effective instruments for short term output stabilization.

In order to even apply the traditional optimal currency area arguments, one must first rely on the assumption that exchange-rate changes will trigger rapid production responses. There are strong reasons to expect that enterprises in the FSU currently would not be very responsive to movements in these bilateral exchange rates. In this early period of transition, enterprises have pursued a pattern of behavior based on "survival" constraints. For example, when faced with an adverse terms-of-trade shocks, enterprises can provide their trading partners with large volumes of inter-enterprise credit, with the hope that the government will bail-out enterprises that are unable to collect debts in arrears.<sup>9</sup> This behavior reduces the enterprise focus on the bottom line, and hence, makes it more likely that the enterprise will "pass through" exchange-rate adjustments to the price, as opposed to responding with an output adjustment.

High rates of exchange-rate "pass through" also is expected as a result of the type of industrial structure inherited from the Soviet period. Production in the FSU is characterized by enterprises that have large market shares.<sup>10</sup> This increases the likelihood of low output sensitivity and high price sensitivity because the more concentrated and monopolistic is production in an industry, the greater the likelihood the enterprise will respond to exchange-rate changes by adjusting its output price so as to maintain market share.<sup>11</sup>

The tendency for enterprises to "pass through" exchange-rate changes is likely to persist in the near future. The survival orientation of enterprises is a result of fundamental incentive and information problems that seem unlikely to be eliminated in the short run. The monopolistic production structure, inherited from the Soviet period, is also likely to

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<sup>9</sup>For a detailed discussion of survival constraints on enterprises and the evolution of inter-enterprise arrears in Russia see Ickes and Ryterman (1992, 1993).

<sup>10</sup>Recent work by Brown, Ickes, and Ryterman (1993) suggests that the degree of industrial concentration is much smaller than conventionally believed. Concentration arises, not because of few firms in the national economy, but because of a poor distribution system creates powerful local markets.

<sup>11</sup>See Dornbusch (1987) for a model of exchange-rate pass through. For an analysis of the Soviet case, see Goldberg and Karimov (1991).



persist in the near term, both because of the stage of economic transition and because barriers to entry by small firms in intra-regional trade remain important, especially given a lack of information about demand elsewhere in the FSU and in world markets.<sup>12</sup> Under such circumstances, exchange rates will have limited effectiveness for short-term output-stabilization goals.

A second reason why exchange rates are ineffective tools in the current period is that problems in the payments system continue to hamper inter-republican trade. These difficulties in arranging payments across the FSU lead to long and variable lags in the receipt of payments for goods.<sup>13</sup> In periods of high inflation, long and uncertain delays in clearing can introduce larger variability in the real return to exports than changes in the nominal exchange rate. Under such circumstances, enterprises try to insulate themselves as much as possible from entanglement in the payments system and thereby have placed a greater emphasis on barter transactions. This action, in itself, limits the effectiveness of the exchange-rate instrument, since it reduces the sensitivity of the decision to export to fluctuations in the nominal exchange rate.

Finally, it must be noted, of course, that these limitations on the exchange rate as an effective stabilization instrument may be transitory. For countries that implement successful economic reforms, the importance of our criticisms against apply the traditional arguments will wane. Successful market reforms may erode the monopolistic structure of industry and informational barriers to trade and production may be reduced over time. In this latter scenario, the countries that undergo rapid transformation are those most likely to be able to frame their discussions of optimal currency area participation in terms of the traditional Mundellian criterion. However, at the stages of economic reform achieved by the countries of the former Soviet Union by 1993, these traditional arguments for introducing independent currencies are of limited relevance.

### **III. PUBLIC-FINANCE ARGUMENTS FOR INTRODUCING NATIONAL CURRENCIES**

#### **IIIA. PUBLIC-FINANCE BASED ARGUMENTS**

Recent arguments for maintaining independent currencies versus participation in a common currency area shift the emphasis of the debate away from the role of exchange

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<sup>12</sup>Such informational barriers are the result of intra-regional trading links that were imposed from above, by the planning system, rather than from the enterprises themselves.

<sup>13</sup>This is true for domestic transactions as well as inter-republican transactions. The important point, in this context, is that the introduction of new currencies will not reduce the payments lags for transactions that go through the banking system. Hence, payments lags are still likely to dominate nominal exchange-rate fluctuations in the effect on revenues.

rates as instruments of output stabilization and instead consider whether a national money can provide a government with an important tool for budgetary finance. One source of finance is seignorage, often called the inflation tax because it taxes existing holders of money balances. When a country prints money to pay for its expenditures, it generates inflation, lowering the real value of the payments. As developed in the arguments applied to ERM participation, an important and quite contentious issue is the division of seignorage rents across participants in the common currency area. The desire of a country to secure a (disproportionately) large share of benefits and political influence in a currency union provides the compelling logic behind a country's decision to forego an independent currency and submit itself to centralized monetary discipline. Without some threshold level of political influence or transfers from the rest of the currency area, a country may choose to stay outside of a common currency area.<sup>14</sup>

The problem of seignorage division can be more broadly interpreted. In the context of the FSU, there is a range of vehicles for cross-country fiscal transfers and subsidies which depend on whether a country remains within or departs from the common currency area, wherein seignorage is only one of these transfers and not necessarily the most important transfer. All of these transfers should be considered from the vantage point of the lessons learned from the debates over seignorage division across the ERM.

Another public-finance motive in favor of maintaining independent currencies is based on the principle that countries have different optimal inflation rates. The more asymmetric are countries on their reliance on inflation tax revenues (or, alternatively, the more that countries differ in the difficulty or costs associated with budgetary finance via the collection of taxes on goods and services), the more reluctant will be the high inflation country to forego its independent currency (and inflation rate) and enter into a currency union in which it will receive reduced fiscal "benefits" from inflation.<sup>15</sup> From a pure public-finance perspective, any common currency constraint that makes the inflation rates of the two countries converge must decrease the income of at least one of the countries.

Another important economic argument for participating in a common currency area is that the union may impose a degree of monetary discipline that a government

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<sup>14</sup>Casella (1992) considers the type of transfers required for participation of a large country and small country within a union when there is a negative externality that the currency union is intended to address. The union is viewed as imposing a beneficial discipline on all agents, with deviation costly. The small country participates in the union only if it can receive a relatively favorable share of the seignorage revenues distributed within the currency area. The large country is willing to participate, up to a point, when it can still gain more from the discipline that the common currency imposes on its partner than it loses in control over domestic policies.

<sup>15</sup>This highlights the revenue effects of inflation, but not the efficiency costs.

desires but cannot itself commit to. The union is viewed as an enabling mechanism, whereby "weak" central bankers unable to credibly commit to low inflation are able to borrow credibility from the independent central banking authority.

In sum, according to these public-finance and revenue-based arguments, a small country should leave a common currency area if: (i) it is not compensated for the welfare losses associated with pursuing suboptimal inflation policies; (ii) it is unable to secure a disproportionately high amount of influence in setting monetary policy, or alternatively stated, a relatively large share of the seignorage or net fiscal transfers; and (iii) if it does not seek to or is unable to import the credibility associated with the policies of low inflation of a dominant central banker.

Finally, it should be recognized that if a common currency area is to be maintained, a mechanism is required for coordination and control of monetary emissions by the participating countries. Without such control, participants in the common currency area are able to independently print money (or extend credit) and the union will be characterized by excessive money creation. This inflation bias, noted early in this debate by Buiter and Eaton (1983), arises because each country attempts to print money and export part of the inflation tax to its partners in the common currency area.<sup>16</sup>

### IIIB. RELEVANCE OF PUBLIC-FINANCE ARGUMENTS FOR THE FSU

For these public-finance arguments to be relevant, it must be established that the transfers they emphasize, including seignorage flows, are quantitatively important. In the context of the FSU, the answer is likely to be affirmative on the seignorage issue. Based on worldwide experiences, we know that between the 1960s and the 1980s the ratio of seignorage to total government revenues was substantial for some countries, sometimes in excess of 10 percent.<sup>17</sup> *Since inflation and seignorage reliance are strongly inversely related to the efficiency of tax collection systems, and positively correlated with political instability, seignorage reliance is expected to be high in the FSU.* This is exacerbated by the fiscal crisis which the transition clearly has imposed throughout the FSU. In Russia

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<sup>16</sup>See Canzoneri and Rogers (1990). This result is also noted by Aizenman (1992) and Casella and Feinstein (1989).

<sup>17</sup>Fischer (1982, p.301) found that during this period there were basically two types of countries that relied heavily on inflationary finance: those with "active" and "passive" seignorage collection. "Seignorage use is active in the high inflation countries, such as Argentina, Uruguay, Chile and Brazil. It is passive in the rapidly growing countries, such as many members of OPEC. In the passive case, seignorage is obtained by providing high-powered money to meet the rapidly growing demand, without necessarily having high inflation." Cukierman, Edwards and Tabellini (1992) found that between 1971 and 1982 thirty-five percent of the 79 economies examined relied on seignorage for more than 10 percent of their total government revenues.

this is exacerbated even further by the inability of the central government to collect revenue from local governments.

Although seignorage is likely to be important throughout the FSU, there may still be differences, across countries, in the degree to which it is relied upon. Cukierman, Edwards and Tabellini (1992) provide evidence about country characteristics associated with seignorage reliance from a study of a cross-section of countries. Reliance on seignorage significantly increases with the share of agricultural output in an economy, with the degree of urbanization, and with observed political polarization and instability. Reliance on seignorage declines with the extent of industrialization and the dependence of an economy on foreign trade. Reliance on seignorage may be less important for those countries with strong extra-republican trade relations because these countries can rely on external tariffs as a revenue source.

Based on country characteristics, it is clear that those countries most likely to rely heavily on seignorage, from this public-finance perspective, would find it most costly to remain in the ruble zone. However, the clear exception arises if the potentially seignorage-dependent economy is sufficiently compensated via other fiscal transfers and subsidies by the other countries participating in the ruble zone, in particular by Russia.<sup>18</sup> *The significance of the public-finance or seignorage arguments for independent currencies cannot be discussed in isolation from the other transfers associated with participation in the ruble zone.* In the remainder of this section, we identify two main classes of transfers, direct transfers via the monetary and payments regimes, and indirect transfers via the distorted system of inter-republican trade pricing. Given these forces, the section will then conclude with an assessment of the balance of the net inter-republican fiscal or public-finance effects for each country of departures from the ruble zone.

#### MONETARY CONTROL AND EMISSION ACROSS REPUBLICS OF THE FSU

The importance of seignorage and the role of independent currencies in the FSU can be understood only in the context of the system of control over monetary (cash and credit) emissions across the central banks remaining in the ruble area. This system affects the ability of the former republics to capture the benefits and export the costs of inflation.

The conduct of monetary policy in the FSU is greatly complicated by the co-existence of two types of rubles that circulate in the area, a legacy of the Soviet period. A

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<sup>18</sup>Inflation also can impact government tax and revenue collection by creating incentives for firms to delay or avoid paying taxes. This makes the tax collection system more inefficient and government financing more difficult. Aizenman (1992) provides conditions for a high-inflation equilibrium which arises when countries with heavy dependence on seignorage find themselves on the wrong side of the inflation tax Laffer curve.

strict separation between cash (*nalichnyye*) and non-cash rubles (*beznalichnyye*) has been enforced within the ruble zone. Enterprises are required to use non-cash rubles to make payments to other enterprises. Cash rubles are used for paying wages and for other incidental expenses.<sup>19</sup> The purpose of this system was to separate payments between enterprises, where credit was lax, from payments to and from households, where hard-budget constraints applied. To some extent, this characterization still applies today: many central banks have pursued a policy of easy credit to enterprises to maintain production.

The countries that remained in the ruble zone after the breakup of the FSU retain this dual monetary structure. This duality complicates monetary control in the ruble zone, since each of the countries in the zone has its own central bank, each of which can issue noncash ruble credits. However, the Central Bank of Russia (CBR) has exclusive authority to issue cash rubles.<sup>20</sup>

Non-Cash Credit Control and Emission: The main monetary instrument of each central bank is the selective quantitative control over credit (or non-cash) ruble emissions. The fungibility of the credit emissions of the central banks located in different countries, and the contributions of these emissions to aggregate inflation, are closely related to type of inter-republican payments regime in place. We consider two payments scenarios: one in which the CBR automatically recognizes and finances negative balances in interrepublican trade, and a second scenario in which a strict credit limit is specified.

When the CBR automatically finances significant negative balances in inter-republican trade, clear free-rider problems arise in the issue of noncash credits. The political-economic benefits of credit expansion, the domestic output effects, are primarily internal to the country in question. But the costs of credit expansion are distributed throughout the FSU, in terms of higher inflation. Hence, each central bank has an

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<sup>19</sup>In general, enterprises in the FSU must pay workers in either cash or commodities. Other instruments of payment, such as checks, are not widely recognized or used. During the cash shortage in 1992, some enterprises tried, with mixed success, to pay workers with vouchers that could be redeemed locally for commodities.

<sup>20</sup>The other monetary instruments of the CBR include interest rates on CBR lending to commercial banks, restrictions on the interest rates paid by the Savings Bank (which deals with household transactions) and commercial banks (which deal with enterprise transactions), and reserve requirements. Reserve requirements are fairly ineffective since there exist excess reserves in the banking system, partially due to the inefficiencies in the payments mechanism. Lending rates, often used for manipulating demand for credit in developed financial markets, are not particularly useful in Russia since they are not a central factor in the availability or disbursement of loans.

incentive to extend credit. The resulting equilibrium is one of excessive domestic credit issuance.<sup>21</sup>

This lax regime was in place in the first half of 1992 and led to free rider problems in the creation of inflation. Under such circumstances, we can ask why this particular process did not cause inflation to increase even more in the first half of 1992, and we also can assess the implications for the division of seignorage across the FSU. The presence of 12 independent central banks did not lead to hyperinflation under this lax payments regime because cash emission was still under the control of the single Central Bank of Russia. As long as the other central banks could not issue their own currencies, the extent to which they could emit credit was constrained by the supply of currency received from Russia (see below). If a country pursued policies leading to excessive inflation, Russia could withhold the cash allocation that country needed for making wage payments to workers. This retaliation potential via seignorage allocations provided a check on the inflationary tendencies inherent in this payments regime.

The alternative payments regime, introduced on July 1, 1992, provided a clearer mechanism for reducing the inflationary tendencies of the republican central banks. The July 1 1992 reforms of the inter-CIS payments regime limited the automatic financing of inter-republican trade deficits to fixed limits. The effect of this was to restrict the degree to which credit expansion in one country, say Ukraine, could spillover into the rest of the FSU. Once Ukraine had reached the ceiling in its correspondent account with the CBR, further credit expansion would not expand aggregate FSU credit. Rather, Ukrainian credit expansions would result in a depreciation of Ukraine credit rubles relative to the credit rubles issued by other parts of the FSU. Although these reforms worked to increase monetary discipline, by August 1992 they were once again modified to restore leniency into the system. Once again, the inter-republican payments regime served to facilitate transfers across countries of the FSU.

Cash Emission and Seignorage: In its capacity as the single source of ruble banknotes within the FSU, the CBR controls division of seignorage revenues across members of the ruble zone. Each member of the zone seeks a rule that would maximize its share of the total: in principle, receipt of a "fair" allocation would play an important role in decisions

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<sup>21</sup>The Nash equilibrium of this game is hyperinflation. Suppose that each central bank chooses a rate of credit expansion,  $\pi_i$ , and that the inflation rate is thus  $\hat{\pi}$ . Then, for central bank  $j$ , the best response is to choose a rate of credit expansion greater than  $\pi_i$ , so that real credit is expanding domestically. Hence,  $\pi_i$  cannot be a best response. Since this argument holds for any  $\pi_i$ , then there is no equilibrium inflation rate in this game. Hence, the result should be hyperinflation.

about whether or not to stay in the zone. As we argue below, this view of fair, and the costs of surrendering control of the money supply to Russia are linked to a country's size and its reform objectives.

Under the old regime, cash rubles were distributed *territorially* based on the aggregate wage bill of a region. Cash was allocated according to the needs of the plan. With the demise of the Soviet Union, and the breakup of *Gosbank* into 15 independent central banks, the form of cash distribution changed dramatically. But the nature of cash distribution hardly changed, since each country in the zone continued to demand cash rubles to pay wages. This history suggests that one natural criterion for dividing seignorage revenue across countries is across levels of economic activity, which can be used as a rough proxy for aggregate wage bills. Such a scheme seems a natural successor to the Soviet one and has the advantage of being easy to negotiate. The bulk of seignorage revenue would remain in Russia, as was the case under the old system. Table 1 provides country-specific shares in the aggregated NMP (net material product) of the FSU in 1990, along with the share of the FSU population in each of the countries. Also provided are population shares and, as a reference, the agreed upon shares from the Debt Deferral Agreements signed after the demise of the Soviet Union.

In 1992 and early 1993, Russia apparently retained a much higher share of cash issuance than suggested by any of these rules. Not surprisingly, attempts to formalize the division of benefits, such as the negotiations that occurred in Tashkent in June 1992, have met with failure: Russia always demands a higher proportion of implied proceeds and control than other republics are willing to voluntarily accept. There is evidence that Russia retained a higher proportion of total seignorage revenue during the first half of 1992, close to eighty percent, than it did in 1990 and 1991, when the Russian share was closer to 65 percent.<sup>22</sup>

The division of the seignorage and allocation of ruble banknotes are more than just revenue issues in which the former republics perceive themselves as receiving inadequate rents. This division of cash can pose restraints on reform objectives. To understand this, consider the current state of the financial system in the FSU, in which wages are paid in cash and this cash is produced only by the Russian central bank.<sup>23</sup> If deliveries of cash are inadequate, enterprises are unable to fully pay wages.<sup>24</sup> Indeed, during the period of cash shortage -- in the first half of 1992 -- delays in wage payments were a common

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<sup>22</sup> Noren and Watson, p. 122, 1992.

<sup>23</sup> As opposed to checks. Wages are also, to some extent, paid in kind.

<sup>24</sup> The domestic banking system has an alternative source of cash: the deposits of the retail enterprises that sell to the public.

occurrence, not only in parts of Russia, but in other parts of the zone as well. These cash shortages were differentially experienced across countries, in part due to the presence of non-uniform rates of reform of countries during the transition era.

Countries that pursue different rates of reform also differ in their needs for cash balances. The reason is that the demand for cash rubles depends on nominal income. Hence, it is related to the price level. Although inflationary pressures are strong throughout the ruble zone, those parts of the zone that liberalize prices and wages first have, *ceteris paribus*, a higher demand for cash. This last consideration is not a minor issue. Since Russia liberalized prices on January 2, 1992, prices have risen dramatically. Throughout the first half of 1992, there was a cash shortage in Russia and the CBR was reluctant to distribute scarce cash outside Russia. The other countries of the FSU found themselves importing Russian inflation and having the real value of their cash holdings eroded. For both slow and more rapid reformers, the reluctance of the Russian central bank to distribute cash posed a serious threat to their own economies.

However, those countries that implemented radical price reform and received inadequate cash shipments from the CBR experienced the greatest immediate erosion in the purchasing power of their populace. The inability of the governments to pay wages threatened to erode popular support for reform programs and potentially threatened the continued existence of the more radical reforms. In this setting, the introduction of independent currencies undertakes a new function, since these independent currencies could be used to prevent the Russia's cash withholdings from undermining political momentum for more radical reform programs. At the same time, the decision to introduce an independent currency would free a country to obtain its own seignorage.

As we have noted, while this non-Russian republics are likely to achieve greater seignorage allocations with independent currencies as compared to their allocations within the zone, this fiscal issue cannot be divorced from other important transfers that are associated with remaining in the zone. The question of how to distribute the seignorage cannot be distinguished from the question of fiscal transfers in general, including the size of implicit transfers to countries from the inter-republican pricing mechanism and explicit transfers from the inter-republican payments regime.

Before considering the size of these other transfers, two further considerations are worth noting on the seignorage issue. First, by leaving the zone, the country forgoes any other fiscal-cum subsidy transfers from Russia, *plus* the seignorage it would get anyway.<sup>25</sup> Thus, a comparison is required of the size of these bilateral transfers relative to seignorage

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<sup>25</sup>Recall the discussion of the required transfers to small countries to encourage participation in a union.



revenue itself. Second, it is worth noting that the actual level of seignorage collection may differ within and outside of the ruble zone. While it is an open question whether leaving the ruble zone would lead to more inflation for countries, this may be the case for the non-oil producing nations.<sup>26</sup> Thus, the potential inflation cost of obtaining higher seignorage revenue also must be added to the ledger when assessing the value of monetary independence.

#### IMPLICIT INTER-REPUBLICAN TRANSFERS VIA TRADE ACTIVITY

Patterns in inter-republican trade and the implicit transfers associated with trade while within the ruble zone raise important revenue issues upon departure from the zone. There is significant bilateral concentration of trade and economic activity between Russia and the other former republics, and this trade continues to be conducted at prices that differ dramatically from those observed on world markets. Russia has threatened that countries that depart from the ruble zone will have to pay world market prices on inter-republican trade.

The bilateral concentration of trade between Russia and the former republics is illustrated by the data provided in Tables 2 through 4. Intraregional trade still accounts for an extremely high share of all external activity of the non-Russian republics. Except for Russia, most countries of the former Soviet Union conduct close to 85 percent of their trade intra-regionally. This trade also is extremely important relative to the size of their economies, often directly accounting for more than 40 percent of GDP. The actual sectoral composition of the import and export transactions for each country are presented in Tables 3 and 4, respectively. An important share of Russia's trade with the former republics continues to be transacted through the vehicle of bilateral agreements, rather than through enterprise-to-enterprise negotiations. The persistence of such agreements is important because it limits the impact of market forces on pricing and production decisions.

The Shift to World Market Pricing on Inter- and Extra-Republican Trade: Russian officials have stated that world market prices on petroleum will be charged to any country that leaves the ruble zone. The movements to world-market prices with hard-currency settlements on inter-republican trade will lead to significant changes in the pattern of bilateral inter-republican subsidies and implicit transfers associated with the current price

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<sup>26</sup>Let us suppose that the non-oil producing countries of the FSU will have a greater reliance on inflation. Then, with higher inflation, the demand for real money balances will decrease. Hence, the *inflation-tax base* will shrink and to obtain the target level of revenue these countries may have to inflate even faster.

structure. In this section, we explore the effects of this pricing shift, beginning with an analysis of the short-term effects of the shift to world market prices, prior to any adjustment. We then turn to a discussion of the longer-term effects of this change. These results are important for the theme of our subsequent arguments, that the timing of price reforms and new currency introductions is critical: the timing influences whether the decision to introduce a new currency is fully distinguishable from the choice of price structure, income shocks, and implicitly, a reform strategy.

As shown in Table 5,<sup>27</sup> the countries expected to experience large improvements in their terms-of-trade<sup>28</sup> (TOT) from moving to world prices on inter-republican transactions are Russia (with a 39.3 percent improvement), Kazakhstan (13.5 percent improvement) and Turkmenistan (43.3 percent improvement). According to the bilateral agreements for 1992 trade between Russian and the other countries (see Table 2), Turkmenistan and Kazakhstan have been creditors in bilateral trade with Russia. These countries are not net recipients of subsidies from Russia through the trade channel. Hence, by severing bilaterally imposed prices and moving to national currencies, Turkmenistan and Kazakhstan clearly would (i) improve their returns to exporting relative to the cost of importing and (ii) reduce net outward transfers through the trade channel.

The change in the rules governing the prices of goods traded by countries of the ruble zone would have two effects. First, countries that are net recipients of subsidies (e.g. all countries except for Russia, Turkmenistan and Kazakhstan) could no longer expect to have these subsidies partially insulate them from negative economic shocks. In the short-term, the terms of trade on inter-republican transactions worsens by at least 25 percent for eight of the remaining twelve republics.<sup>29</sup> From the TOT shock alone, these countries will experience significant short-run income contractions. The countries that would experience the largest short-run income declines are Moldova (losing 18.8 percent of GDP), Lithuania (losing 15.6 percent of GDP), Estonia (losing 13.5 percent of GDP), Latvia (losing 11.6 percent of GDP), Belarus (losing 11.4 percent of GDP) and Armenia (losing 11.1 percent of GDP).

Second, in light of the complex rules that organize production *within* an enterprise and *across* enterprises, changes in the structure of prices are likely to produce a negative

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<sup>27</sup>The estimates of the terms-of-trade and output effects are from Tarr (1992). Given the usual caveats about the data problems encountered in using Soviet trade data, one can always debate the validity of the specific quantitative results. Tarr's estimates are, to our knowledge, the best available on this issue. We interpret these estimates as providing a reasonable qualitative description of the implications of the relative pricing shifts. See also McAuley (1991) and Noren and Watson (1992).

<sup>28</sup>The terms-of-trade of a country is defined as the ratio of prices of export goods and import goods.

<sup>29</sup>Armenia, Belarus, Estonia, Georgia, Latvia, Lithuania, Moldova and Ukraine.

effect on economic coordination within each country. These rules, which evolve over time, often are tacit in nature and as a consequence are fragile. Rapid changes in the production environment, such as those caused by these TOT shocks, cause the old rules to become inadequate. Firms that can rapidly develop new rules to meet the demands of the new environment can thrive, but in many cases firms that appear to have *long-run* viability may not be able to adjust quickly in the short run. Within the firm, factors of production need to be reallocated. Without experience in marketing or information regarding alternative supplies and customers, enterprises in the FSU remain bound to current patterns of distribution.

In general, the larger the enterprise, the more complex and fragile its internal organization.<sup>30</sup> Consequently, by these latter arguments, changes in the TOT pose a larger risk of disruption for countries such as Russia that have enterprises that are larger than the regional average. Of course, the high level of inter-dependence of all the countries of the ruble zone<sup>31</sup> suggests that these negative effects can be widely distributed. Under these circumstances, the net short run impact of changes in the terms of trade on the national economies may be sharply contractionary, even for countries that are currently net creditors.

By the end of 1992, a limited amount of inter-republican TOT adjustments already had occurred. First, Russia attempted some bilateral adjustments in relative values of traded goods by negotiating the terms of bilateral agreements with the other former republics. The progress in this particular sphere was limited, especially when one considers the widespread failure of enterprises to participate in the largely voluntary bilateral trade agreements. Second, there was gradual movement by Russia to price its inter-republican energy exports closer to world market levels. Currently, part of Russia's oil is delivered at world prices, part is delivered at subsidized prices, and part according to barter arrangements. If substantial reforms in energy pricing occurs, the incremental TOT effects of moving to world prices would be considerably smaller than those presented in Table 5.

The timing of these pricing shifts is relevant for analyzing the political implications of establishing national currencies. This issue is key, since implications of adopting national currencies may be misconstrued as the implications of adoption of world-market prices on inter-republican trade. If introduction of national currencies does not influence the system of trade pricing, i.e. if trade continues at distorted internal prices, then national currency introduction will not be viewed as synonymous with TOT shocks and will not

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<sup>30</sup>See, for example, Nelson and Winter (1982) and Murrell (1992).

<sup>31</sup>And, in particular, given the central role played by Russia in the distribution of goods in the region.

have the same "immediate" political consequence. Under this scenario, there would be a continuation of implicit subsidies from Russia, despite the fact that these countries have left the ruble zone.

Alternatively, if the introduction of national currencies entails a change in inter-republican trade pricing, the implications of this currency reform will depend on the scale of output contractions or expansions that ensue. Beyond the short-run income effects, the continued implications depend, in part, on the extent to which the economy had previously moved toward world-market pricing on inter-republican and extra-republican trade. If energy prices had been adjusted prior to departure from the ruble zone, some of the *incremental* contractionary income effects associated with departure from the zone would be mitigated.

The overall short-run effect on income from introduction of world prices on inter-republican trade also depends on the status of extra-republican trade pricing. Using data from 1990, Tarr (1992) presents evidence that countries of the FSU continued to price below world market levels on a vast array of goods. If this pricing behavior persists into 1993, the former republics and Russia have the potential to use movements to world market pricing on extra-republican trade for cushioning part of the blow from the internal pricing adjustments. From *purely a TOT effect perspective*, all countries of the FSU would benefit from moving to world-market prices on extra-republican trade (Table 5).

The fact that some countries will gain on their extra-republican trade while they experience a deterioration in the TOT on inter-republican trade may appear puzzling on first glance. On closer inspection, however, these results are what should be expected, with a caveat that is worth remembering. The caveat is that this pattern of TOT effects may be reversed upon disintegration of the union.

Imports and exports of each of the former republics (in 1989 and 1990) are based, essentially, on all-union trade patterns. In their extra-republican trade, these countries tended to export the same hard goods, petroleum products and ferrous and non-ferrous metals, as the Soviet Union as a whole. Their imports also followed the Soviet pattern, and were largely comprised of machinery and food. Hence, the TOT effect for any of these countries from a move to world-market prices on extra-republican trade mirrors that of the Soviet Union as a whole, instead of reflecting a country's endowments. For example, Moldova exported electric power and Belarus was an exporter of refined petroleum products.<sup>32</sup> This trade pattern was feasible because these (and other) countries

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<sup>32</sup>Interestingly, the results in Table 5 seem to indicate that inter-republican trade conformed more to resource endowments than extra-republican trade.

were importing energy in a raw form on an inter-republican basis. *The important caveat is that these trade patterns may not be sustainable.* Hence, the improvement in the extra-republican TOT for some countries (e.g., Belarus and Moldova) may evaporate as trade patterns adjust.

With both the inter- and extra-republican pricing shifts taken into account, Tarr's numbers suggest that the countries that would experience the largest short-run income declines are Moldova (losing 16.1 percent of GDP), Estonia (losing 12.7 percent of GDP), Latvia (losing 11.3 percent of GDP), and Armenia (losing 7.6 percent of GDP). By contrast, positive short-run transfers would go to Turkmenistan (with gains of 19.5 percent of GDP), Russia (gains of 17.7 percent of GDP), and Kazakhstan (with gains of 7.4 percent of GDP). However, *these numerical estimates of income effects still ignore the negative short-run implications of disrupting the existing transaction regime*, with its complex organizational rules. The overall impact and cumulative effects will depend on the speed with which countries reallocate productive inputs into more profitable ventures.

For non-oil producing nations, departure from the ruble zone will imply the rapid onset of a negative supply shock. If these countries are slow to reallocate productive inputs in response to the altered pricing structure, i.e. if they do not undertake required supply-side reforms, the negative income effects may be prolonged and severe. This negative scenario may be cushioned if the movement to independent national currencies is accompanied by a liberal reform program on international trade and production. It is quite clear, therefore, that the timing of the energy price adjustments and the move to world pricing on extra-republican trade are among the key determinants of the political ramifications of introducing national currencies. As we further argue in Section IV, the country-specific implications of departing from the ruble zone will depend on whether extreme gradualists or more liberal reformers are charting the course upon departure from the ruble zone.

#### INTER-REPUBLICAN TRANSFERS THROUGH THE PAYMENTS REGIME

The system of settlements and payments on inter-republican transactions further contributes to the income effects of departure from the ruble zone. As briefly discussed in the section on non-cash credit control, a series of inter-republican payments regimes have been in place since the break-up of the FSU. Each of these provides for a different set of inter-republican transfers via credit extension.

As of January 2, 1992, all inter-republican transactions, including the provision of cash rubles from Russia, were to be carried out through bilateral "correspondent accounts" held by each of the republican central banks with the Central Bank of Russia.

When the non-Russian republics ran ruble deficits on trade, these were met in the correspondent accounts only up to the level of bilateral credit provided to the republic by the CBR. However, no effective mechanism was implemented to address overdrawn balances. Accordingly, the non-Russian republics used this system as a line of credit, without extreme concerns about repayment of these credit extensions. This led to free-rider problems and excessive inflation.<sup>33</sup>

In principle, this system was partially reformed and tightened in Minsk in February 1992, when the CIS states agreed that states had the right to impose payments restrictions if imbalances in trade were to occur.<sup>34</sup> As implemented, this system proved to be an unreliable payments mechanism with settlement delays ranging to 2 months or greater and with parties originating the transactions compensated at uncertain ruble values. Enterprise participation in market-based inter-republican trade was deterred, instead promoting heavy reliance on barter, inter-republican agreements, and incentives for clearing outside of specified channels. Inter-enterprise arrears soared during this time, threatening the progress of market-based reforms.

On July 1, 1992 a new system for bilateral interstate payments was introduced. Balances previously accumulated in the correspondent accounts were frozen as part of a more general plan to deal with country arrears. Inter-republican claims outstanding as of this date were to be bilaterally settled. Payments channeled through the CBR, including inter-republican cash transfers, thereafter were to be honored by the CBR *only to the extent that there were sufficient funds in the relevant correspondent accounts*. These inter-republican payments were to be processed only subject to formal agreements and negotiated credit lines: the CBR effectively placed a cap on access to bilateral direct cash transfers from Russia.

This system would have enforced some degree of monetary autonomy on the former republics. Once a country reached the ceiling of the credit line in its correspondent account, further trade payments to Russia (and purchases of cash rubles from Russia for wage payments) typically required the use of non-cash credits issued by the central bank of the deficit country. This activity led to the development of a market for non-cash credits, wherein credits were denominated by country of origin. The relative price of a

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<sup>33</sup>Recall that inflation creation was to some degree checked by restrictions on flows of cash rubles.

<sup>34</sup>"The introduction of correspondent accounts for inter-republican payments was the CBR's initial response to the problem of the spillover of ruble balances. The CBR announced its intention to treat the existing ruble stock in other republics of the former USSR, and a new ruble issue, as a liability of each republic's account. Thus, to increase its currency in circulation, a republic that maintains the ruble as its currency must either run a balance of payments surplus with Russia or must pay interest for any overdraft required to obtain additional rubles"(IMF 1992a, p.20)

country's credits depended on whether it had reached the cap in its correspondent account and on the overall availability of its credits.<sup>35</sup> In effect, this tight payments system on ruble credit made each republic issue its own "money", and the values of the respective moneys were determined flexibly. Uncertainty over these values, like uncertainty over any bilateral exchange rates, may have increased transaction costs on inter-republican trade.<sup>36</sup> The individual countries were restricted in their ability to export inflation, gain access to additional cash, and collect seignorage within the ruble zone.

However, the new payments regime further disrupted trade due to a sharp contraction in the availability of the credits generally used for "trade finance". In contrast to the previous regime, the CBR now required prepayment on inter-republican trade, i.e. payment prior to the delivery of goods. The purpose of this policy shift was to eliminate inter-enterprise arrears.<sup>37</sup> This policy posed severe constraints on enterprises, especially those in countries running deficit positions in inter-republican trade, since their primary source of credit was eliminated. Payments from non-Russian enterprises to Russian enterprises slowed, worsening the arrears problems for the latter.

From Russia's perspective, there was a negative income effect from the slow receipt of payments and the contraction of trade volumes, without the corresponding TOT gains that would have occurred with adjusted relative prices on inter-republican trade. Arguing that Russia was imposing overly severe burdens on the republics, by the end of August 1992 the CBR back-tracked on the previous settlements system reforms. The CBR thereafter selectively issued transfers, i.e. flows of cash and credits, to former republics and to choice industries. These actions reestablished the incentives for countries to pursue highly inflationary policies by issuing ruble credits. In addition, it provided favorable terms to enterprises heavily reliant on traditional Russian exports, muddying market-based mechanisms for transacting and further biasing conditions against industrial restructuring. Through the end of 1992, officials of the central banks of the former Soviet Union continued to consider further changes in the inter-republican payments mechanism, examining alternative proposals for systems with multilateral rather than bilateral clearing procedures.

As we have stressed, each of these payments regimes is associated with a set of inter-republican transfers and each restricts the ability and form of monetary policy that

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<sup>35</sup>In practice, republic-specific non-cash credits in practice were not exchangeable on a one-to-one basis with non-cash credits issued by the CBR.

<sup>36</sup>During this period, the commercial banks in CIS countries actively discounted the value of non-cash ruble issues by different republics. Apparently, this discounting did not occur in organized markets, but rather in bilateral transactions among banks. [*Commerciant*, various issues].

<sup>37</sup>This is discussed further in Ickes and Ryterman (1993).

can be invoked by respective central banks. The payment regime plays an important role in allocating inter-republican transfers and in enforcing the internalization of the consequences of cash and noncash ruble emissions. With a strict settlements regime, the non-Russian republics have a limited line of credit from Russia, and are constrained in their ability to export inflation and effectively tax other countries. The strict settlements regime limits the free rider problem of inflation, causes the value of country noncash credits to "float" against each other, and has some of the characteristics of an independent currency regime. But, at the same time these countries cannot collect seignorage rents on cash disbursements beyond the allocations provided by Russia.

#### **IV. THE TIMING AND IMPLICATIONS OF INTRODUCING NATIONAL CURRENCIES**

The preceding sections provided a range of arguments on the relative merits of introducing national currencies versus remaining in the ruble zone. Below we categorize our conclusions. We begin by distinguishing the effects of ruble zone departure under two alternative initial conditions: (i) world-market pricing is not yet introduced on inter-republican trade, and (ii) world-market pricing is already introduced on inter-republican trade.

If world-market pricing is not yet introduced on inter-republican trade, the introduction of national currencies is associated with large terms-of-trade shocks. For all former republics, possibly with the exception of Kazakhstan, Turkmenistan and Russia, these shocks almost certainly will imply that significant income losses are experienced in the short run. A country (or governing group) that does not want to implement rapid reforms and accept a radical shift in prices therefore may view departure from the ruble zone as leading to an unacceptable outcome. Moreover, the income losses will be prolonged if impediments to the reallocation of resources within the economy are maintained. One would expect countries engaged in more gradual programs of economic reform to avoid departure from the ruble zone. These slow reformers also would be under less pressure to accumulate large cash allocations in order to pay wages, since nominal wages might not increase as rapidly as the nominal wages of rapid reformers. For these countries, it is difficult to imagine that the "undesirable" economic effects would outweigh the relative symbolic importance of having a national currency.

Kazakhstan and Turkmenistan are possible exceptions to this rule. These countries may seek independence to discontinue their subsidies to the rest of the union since they may experience income gains from the movement to world-market pricing on inter-



republican trade.<sup>38</sup> These gains are possible even if the reallocation of productive resources does not occur. For Kazakhstan and Turkmenistan, participation in the ruble zone makes sense mainly if Russia had been providing shares of seignorage that were larger than both the allocations possible with independent national currencies and the amount of their implicit transfers to Russia.

For more rapid reformers, the choice of currency area participation is complex in the period preceding relative pricing reforms, but likely to weigh in favor of independent currency introduction. If departure from the ruble zone (and the shift to world-market prices on inter-republican trade) is accompanied by a rapid movement to world-market pricing on extra-republican trade, it is possible that the immediate income losses for all countries could be limited.<sup>39</sup> Nonetheless, there will be strong sectoral and distributional effects. In principal, these could be dispersed via a redistribution program, or, more practically, under a regime which allows productive inputs to reallocate rapidly in response to the new relative prices. In addition, the reforming countries would be able to capture a higher proportion of seignorage revenues and of cash allotments than they captured within the system dominated by Russia. In this case, it is less likely that reform efforts which led to relatively high inflation would be undermined by the inability of a government to make adequate wage payments to the population. Even without resorting to arguments based on symbols of sovereignty, governments undertaking radical reforms may be politically strengthened if their country departs from the ruble zone.

The important exceptions are Estonia, Latvia, Lithuania and Moldova, all of whom would experience immediate income losses in excess of 10 percent of GDP, even with immediate movements to world-market pricing on extra-republican trade. The losses of implicit subsidies from Russia are unlikely to be compensated by the net gains from the seignorage revenues that these countries are able to extract with independent national currencies. For these countries, unless there is an extremely rapid adjustment -- more rapid than regional and global history would suggest -- departure from the ruble zone prior to movements toward world-market pricing on inter-republican trade is likely to lead

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<sup>38</sup> Although it is possible that reductions in trade volumes could offset these gains.

<sup>39</sup> By 1993, some of this extra-republican adjustments may already have occurred, so that the depressing effects of the TOT shocks on inter-republican trade may not be mitigated from this channel. Moreover, these direct income calculations ignore the additional short-run output contractions that relative price changes may trigger.

prolonged losses, and as a consequence, to political instability. These circumstances bode poorly for the tenure of the political parties that initiated monetary independence.<sup>40</sup>

The political implications of the reforms are less controversial under the scenario wherein a country's departure from the ruble zone follows price reforms on inter-republican trade. In this case, the negative income shocks from inter-republican TOT adjustment already have buffeted the former republics and may even be viewed as imposed by Russia. The negative income shocks experienced by countries cannot be reversed if a country alters its position *vis-a-vis* the ruble zone. If shifts to world market pricing on extra-republican trade have not yet transpired, such adjustments may help the country avoid large continued income losses (again, with the exception of the Baltic nations and Moldova which still will experience large losses, and Turkmenistan and Kazakhstan which may experience income gains).

Unless the non-Russian republics receive a new allocation of direct subsidies from Russia, which is quite unlikely, both slow reformers and more rapid reformers are likely to capture larger shares of seignorage revenue under independent currencies than within the monetary union. At the same time, these countries, after attributing the TOT shocks to Russia, can make an affirmative statement of political sovereignty by introducing their own currencies. The introduction of an independent currency acts to signal and affirm a country's reform trajectory.

#### RUSSIA'S ROLE IN THE RUBLE ZONE:

We have not yet fully developed the implications of these alternative scenarios for the center of the ruble zone, Russia. Russia implicitly subsidizes the other former republics through the price structure on inter-republican trade and, in turn, extracts rents from these countries in the form of seignorage. In terms of income and net transfer effects, Russia is a net loser from this strategy. Why, then, doesn't Russia depart from the ruble zone by introducing a new Russian currency? The sovereignty motive for introducing a national currency is not relevant here: the ruble already is controlled by Russia. Instead, the answer is based on assignment of the responsibility for the internal and inter-republican effects from the change in the relative price structure and on the costs of collapsing the pre-existing monetary regime.

By avoiding responsibility for imposing a large TOT adjustment, Russia may avoid responsibility for important issues of inter-enterprise income redistribution that follows a

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<sup>40</sup>This conclusion is based on the assertion that the consequences of TOT adjustments will be attributed to the introduction of a national currency, and the blame therefore assigned to the introducers of the national currency.

large shift in relative prices on inter-republican transactions. Since established industries in Russia still maintain considerable power, and since these industries are expected to lose from changes in the system, their representatives are likely to try to favor policies that encourage maintenance of a large ruble zone (and therefore a broader tax base). These interest groups would use the threat of shifting to trade to world-market prices to deter countries from departing from the ruble zone. However, these threats may not be credible: even if these non-Russian republics depart from the ruble zone (so that Russia is unable to collect further seignorage rents from them), for distributional reasons the same groups in Russia may advocate that the threats of imposed world market prices not be carried out. Some established groups will attempt to block the relative price adjustment to avoid internalizing the unfavorable TOT outcomes.

Another reason for Russia's reluctance to adopt a new currency stems from its unique initial standing within the ruble zone. If Russia were to depart from the ruble zone, the whole prior monetary system would collapse.<sup>41</sup> To a degree, the withdrawal of Russia from the zone would affect more than just the system of payments. As we have argued, the rest of the zone would be subject to a severe terms-of-trade shock since Russia certainly is not likely to withdraw from the zone and continue to sell oil at prices far below world market levels. Hence, under these circumstances, it would be better for Russia to let the other members of the zone initiate its disintegration. Then, Russia could receive the benefits from the improvements in its own terms of trade without receiving the blame for causing the contractions experienced by its trading partners.

Although Russia could implicitly encourage other countries to depart from the zone, such encouragement may be provided warily since Russia itself may experience undesirable inflationary stimuli. If, for example, Ukraine leaves the zone (as occurred at the end of 1992), a mechanism must be implemented to prevent the excess rubles from flowing back to Russia. Otherwise Russia will suffer from the inflation generated by the introduction of new currencies.<sup>42</sup> This fear of "inflation spillover" from the "ruble return" is most pressing for large countries such as Belarus and Ukraine, and less threatening in the context of small countries, like the Baltic nations.<sup>43</sup>

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<sup>41</sup>This is reminiscent of the asymmetry in the Bretton Woods system. Other countries could devalue their currencies against the dollar, but the US could only devalue against gold. This was often referred to as the  $n^{\text{th}}$  country problem.

<sup>42</sup>If one country leaves the ruble zone, the remaining members, *save* Russia, can insulate themselves, to some extent by stamping their currencies. Were Russia to attempt this, however, it would amount to the introduction of a new Russian ruble, and hence an end to the zone.

<sup>43</sup>Gaidar noted that it was one thing for the Baltics to unload their rubles: It... "has, of course, an effect on the inhabitants of the neighboring oblasts, but for the monetary system as a whole it can be ignored according to the law of large numbers" (*Komsomol'skaya pravda*, October 26, 1991:2). But Ukraine would

In this context, the experience from the decline of the Austro-Hungarian empire is informative<sup>44</sup> and provides useful insights for Russia. Countries that introduced their own currencies early did not end up converting all of their old currency. The reason is that individuals convert their notes in the country that offers the best terms. If agents believe that better terms for conversion later could be found elsewhere, they would hold on to their rubles when the first conversion occurs. This means that countries which redeem their old notes for new ones *later* will have more notes to redeem. Hence, there is a strong incentive for other countries of the zone to introduce new currencies when the first country does so. Since such redemption would occur rather quickly and would have inflationary consequences for Russia, Russia may resist the break-up of the zone.

Beyond these distributional and allocative arguments, another related explanation for Russia's continued participation in the ruble zone is the desire to avoid increases in transaction costs that are associated with transacting in multiple currencies. Under a unified market, enterprises can continue to use non-cash ruble credits to facilitate trade. Prices could continue to be set as before and potentially settlement could continue to take place within the old payment regime. In this case, there may be large negative externalities associated with independent currencies. Russia may be willing to pay to avoid these externalities.<sup>45</sup> Indeed, without first implementing major reforms of the settlements and payments system, the introduction of multiple currencies could greatly complicate the costs and procedures for transacting.

## V. CONCLUSIONS

At the time of writing this paper, the ruble zone already had substantially collapsed. The countries that had departed from the zone together account for more than 60 percent of the NMP of the non-Russian republics of the former Soviet Union. Ukraine and Belarus departed from the ruble zone in November 1992, joining Estonia, which had left the zone in June 1992, and Latvia and Lithuania. Estonia had established a fixed exchange rate relative to the deutschemark and both Ukraine's karbovanets and Belarus' coupons traded against the ruble. By the end of 1992, the Lithuanian coupon and Latvian

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be different, as Yeltsin noted when asked what could hinder the economic reform program: "The uncontrolled entry of money into Russia," quoted in Noren and Watson (1992).

<sup>44</sup>See Garber and Spencer (1992).

<sup>45</sup>This is analogous to the issue of large country avoidance of inflation externalities as discussed in the more general theoretical analysis by Casella (1992).

lit remained at transitional introductory stages.<sup>46</sup> Kyrgyzstan has announced its intention to introduce separate currencies after a transition period, perhaps in 1993-1994.

For Ukraine and Belarus, it is unclear at this point whether Russia is enforcing the threat of pricing inter-republican transactions at world market prices. The continuing political problems in Russia have led to a slowing of Russian reforms and a greater voice to existing large industries within Russia which, in turn, mean that the threatened imposition of world-market pricing on inter-republican trade may be forestalled. This would entail the continuance of implicit subsidies by Russia to the former republics, despite that fact that these countries have departed from the zone. While this delays some of the consequent output contractions, it also further delays the adjustment process.

If the pricing threat is carried out, the loss of implicit transfers from Russia is likely to cause large contractions in Ukraine and Belarus. Without reform initiatives that facilitate adjustment, these contractions can be prolonged. While the reforms lead to louder objections from the groups unfavorably affected by the new system, the threat of prolonged losses places greater pressure on the government to encourage resources to be reallocated in response to the new set of relative prices. Thus, the act of initiating independent currencies could reinforce a reformist trajectory.

One of the implications of our analyses appears to precisely contradict the turn of events in some countries of the FSU. Our analysis has suggested that income and output contractions are likely to be large for the Baltic nations while the consequences of an independent currency for Kazakhstan and Turkmenistan are relatively small. If there is any prediction to be made from the analysis of the costs and benefits of leaving the zone, it is that the former countries will try to remain in the ruble zone, while the latter may opt for a new currency. *Why have new currencies been introduced in the former but not the latter?* Why, in other words, is our analysis of the costs and benefits of independent currencies yielding opposite predictions from events?

The main point is that our analysis is not meant to be predictive but rather is intended to indicate the economic consequences of ruble zone departures. The order of departures from the ruble zone entails more than an economic decision. Politics matter. Our analysis is directed at analyzing *the consequences* of introducing a new currency. We mentioned in the introduction that independent currencies are a symbol of sovereignty. Hence, unless a population is exceptionally informed about the range of issues presented in this paper, one should not expect that the calculus of costs and benefits to predict which countries will be first to adopt independent currencies.

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<sup>46</sup>*Commerzant* 12/1/92 "To each his own doesn't settle it."

Another more powerful explanation for why the calculus of costs and benefits does not predict the pattern of departures from the ruble zone is associated with the signalling role of an independent currency. The move to an independent currency is a means of signalling a break with the past. By severing the currency link with the other countries of the FSU, a government may hasten the process of economic reform. Indeed, to make the move to a new currency a success, a set of ancillary reforms are needed which may be painful to implement, such as price liberalization and control over fiscal deficits. It may be easier to undertake these reforms if they can be tied to the successful adoption of an independent currency.

This seems to describe the events in Estonia. The *kroon* was introduced in June of 1992, with the value of the kroon pegged to the deutschemark. To enhance monetary stability, Estonia opted for a currency board.<sup>47</sup> A currency board is the strictest type of monetary arrangement; the Central Bank does not engage in an independent monetary policy, and fiscal deficits cannot be monetized.<sup>48</sup> The currency board simply converts foreign exchange earnings into domestic currency at the fixed peg. A currency board is a rather expensive way to re-monetize the economy, but it does signal that the currency is likely to sustain its value. That this has, so far, been successful is indicated by the fact that the kroon is the only currency that currently circulates in Estonia.

The introduction of the kroon thus was seen as a means of enforcing a radical break with the past. This forces enterprises to end their dependency on the old structures, and enhances the reform process. For reformers who seek to *accelerate* the process of economic adjustment, an independent currency may be a good strategy. It harnesses the nationalist fervor surrounding the new currency to the painful reform policies that may otherwise be unsustainable. This suggests that *countries that are most likely to leave the ruble zone are those that seek a reform path that is more progressive than that of Russia.*

In this regard, it is worth recalling that the primary trade problem in the FSU is *not* the payments problems associated with independent currencies. Rather, it is the fact that the pattern of trade and production that was inherited from the Soviet period is *non-economic*. The problem for policymakers is how to craft a trade regime that does not interfere with the development of *profitable* trade. If a government is pessimistic about the prospects that such a system can be erected within the current trading structure, an early withdrawal from the ruble zone may enhance reform.

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<sup>47</sup>See, for example, Hansson (1992).

<sup>48</sup>Thus, Estonia did not gain, in terms of seignorage revenue, from leaving the ruble zone. As long as the currency board is maintained, the government cannot obtain such revenue.

There is an ironic postscript to our analysis, especially in light of the discussions that have taken place in the European Community. In the European Community, participation in the Exchange Rate Mechanism has, in part, been linked to the desire of countries to import the discipline imposed by a strong center, Germany. This embracing of monetary discipline in Europe does not threaten the sovereignty and independence of the member countries.<sup>49</sup> By contrast, the decision of countries to stay in the ruble zone clearly restricts the pace and direction of their economic reforms. Departure from the ruble zone is a rejection both of Russia's control over monetary policy as the center and of Russia's reform strategy.

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<sup>49</sup>Except for those restrictions on monetary policy required for maintaining tightly controlled exchange rates.

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Table 1: Share of Seignorage Rents to Each State of the former Soviet Union  
Alternative Methods for Distribution

	By NMP Share (1990 ruble prices) [Column A]	By Population Share [Column B]	1991 Fiscal Balance [in billions of rubles (and as %GDP)] [Column C]	quota on participa- tion in Debt Deferral Agreements (in percent) [Column D]
Armenia	0.96	1.21	-0.2 (-1.0)	0.86
Azerbaijan	1.47	2.12	-1.1 (-5.2)	1.64 <sup>a</sup>
Belarus	4.04	3.87	1.6 (2.2)	4.13
Estonia	0.75	....	0.9 (5.5)	0.62 <sup>a</sup>
Georgia	1.49	.....	.....	1.62
Kazakhstan	4.57	5.76	-7.4 (-8.0)	3.86
Kyrgyzstan	0.83	1.29	0.7 (4.6)	0.95
Latvia	1.21	.....	1.8 (8.0)	1.14 <sup>a</sup>
Lithuania	1.37	.....	1.1 (3.2)	1.41 <sup>a</sup>
Moldova	1.29	1.59	.....	1.29 <sup>a</sup>
Tajikistan	0.75	1.44	0.4 (3.4)	0.82
Turkmenistan	0.73	1.14	0.6 (3.2)	0.70 <sup>a</sup>
Ukraine	15.33	19.18	-33.6 (-14.4)	16.37
Uzbekistan	3.23	5.99	-0.3 (-0.5)	3.27 <sup>a</sup>
Russian Federation	61.17	56.41	-128.2 (-11.3)	61.34

a: did not sign 12/4/91 Debt deferral Agreements and Quota

A: IMF 1992b.

B: IMF 1992b.

C: IMF 1992c, Table 28

D: Based on 12/4/91 Debt Agreement IMF 1992c, Table A5

	total trade as % of country GDP in 1991	All Intra- Regional Trade as % of total trade in 1991	<u>1992 Bilateral Deliveries of Goods in Inter- Governmental Agreements Signed by Russia</u>		
			country share of		Bilateral Trade Balance with Russia (mln. rbls)
			Exports from Russia %	Imports to Russia %	
Armenia	54.9	89.1	2.39	1.94	498
Azerbaijan	42.0	85.6	3.68	5.20	-2,199
Belarus	51.4	85.8	15.45	15.92	-1,284
Estonia	63.9	85.1	2.18	2.08	41
Georgia	44.3	86.5	.....	.....	.....
Kazakhstan	33.9	86.3	12.83	10.85	2,111
Kyrgyzstan	45.2	86.9	1.78	1.64	115
Latvia	54.6	86.7	2.39	2.13	245
Lithuania	54.9	86.8	3.61	3.43	88
Moldova	53.1	87.8	3.88	6.43	-3,603
Tajikistan	41.6	86.3	3.70	3.15	575
Turkmenistan	39.3	89.1	2.44	1.86	674
Ukraine	34.1	79.0	38.07	35.74	1,515
Uzbekistan	39.5	85.8	7.60	9.62	-3,043
Russian Federation	22.3	57.8	.....	.....	.....
	source: IMF 1992b, pp.37		source: <i>Commerzant</i> (1992) August 25, 1992		

Table 3: Sectoral Composition of Import Transactions in former Soviet Union  
(domestic prices, millions of 1990 rubles)

Importing Country	All Products		Energy		Food & Agriculture		Machinery & Light Industry	
	Total Interstate Imports (in mln. 1990 rbl)	Russia's Share in Total Imports (in %)	Interstate Energy Imports as % of Total Imports	Share of Energy Imports from Russia (in %)	Interstate F&A Imports as % of Total Imports	Share of F&A Imports from Russia (in %)	Interstate M&LI Imports as % of Total Imports	Share of M&LI Imports from Russia (in %)
Armenia	3714.9	47.83	8.2	43.8	13.7	28.7	46.8	48.6
Azerbaijan	4247.2	52.78	10.6	55.4	13.6	24.1	43.0	55.9
Belarus	14840.7	62.63	12.8	91.0	9.3	21.9	44.5	57.4
Estonia	3157.6	59.01	7.7	86.3	12.5	30.8	47.4	52.7
Georgia	4948.5	54.57	7.1	59.9	16.2	31.4	43.1	56.2
Kazakhstan	14314.1	63.39	12.2	89.8	10.2	25.3	46.7	54.8
Kyrgyzstan	3179.4	48.39	10.7	41.7	13.1	24.7	46.6	48.6
Latvia	4711.2	52.43	12.1	38.0	7.2	19.7	46.8	52.1
Lithuania	6022.3	61.24	16.5	72.5	6.4	25.9	45.4	62.7
Moldova	4991.6	49.31	11.2	35.3	8.1	28.3	45.5	55.3
Russian Federation	67283.7	.....	4.4	.....	23.2	.....	47.4	.....
Tajikistan	3359.3	44.57	10.4	28.9	18.1	17.2	40.3	53.2
Turkmenistan	2923.0	43.63	3.2	11.4	19.7	13.1	51.6	48.4
Ukraine	38988.6	74.10	11.0	90.7	5.8	49.2	49.5	67.7
Uzbekistan	11863.8	50.04	9.3	29.1	18.4	13.8	44.1	56.0
source: Michalopoulos and Tarr (1992) , various tables.								

Table 4: Sectoral Composition of Export Transactions in former Soviet Union  
(domestic prices, millions of 1990 rubles)

Exporting Country	All Products		Energy		Food & Agriculture		Machinery & Light Industry	
	Total Interstate Exports (in mln. 1990 rbl)	Russia's Share in Total Exports (in %)	Interstate Energy Exports as % of Total Exports	Share of Energy Exports from Russia (in %)	Interstate F&A Exports as % of Total Exports	Share of F&A Exports from Russia (in %)	Interstate M&LI Exports as % of Total Exports	Share of M&LI Exports from Russia (in %)
Armenia	3427.8	54.01	0.2	0.0	12.1	88.8	65.8	48.3
Azerbaijan	6104.7	60.69	13.0	50.3	30.8	77.0	37.7	53.8
Belarus	17224.5	57.70	7.2	51.5	7.0	59.3	64.6	58.8
Estonia	2899.8	62.63	4.3	55.8	23.2	88.2	48.1	54.6
Georgia	5724.2	62.16	0.4	26.0	47.8	75.07	34.6	49.2
Kazakhstan	8443.3	50.65	15.6	63.8	27.2	23.1	18.0	37.3
Kyrgyzstan	2445.9	36.68	0.04	8.9	24.3	34.1	62.2	53.7
Latvia	5028.2	49.97	1.9	4.1	23.2	57.6	45.0	47.7
Lithuania	5349.4	50.61	8.1	25.1	17.3	75.4	60.3	49.6
Moldova	5853.3	59.60	0.4	0.0	52.1	68.4	36.6	51.5
Russian Federation	74710.3	.....	13.0	.....	4.5	.....	45.0	.....
Tajikistan	2377.4	49.11	3.2	0.0	20.9	60.9	54.2	45.6
Turkmenistan	2469.0	51.70	30.9	19.1	13.3	90.3	45.3	65.0
Ukraine	38319.1	65.89	1.9	41.8	20.0	63.2	46.1	65.6
Uzbekistan	8169.1	59.25	9.9	50.7	14.9	65.4	54.3	64.6
data source: Michalopoulos and Tarr (1992) , various tables.								

Table 5: Moving to World Prices: Terms-of-Trade and Short-run Output Effects

[ reproduced from Tarr (1992) ]

Estimates based on 105 sector aggregation of output, with 1990 data.

	Terms of Trade Effects of moving to world prices in respective market (in percent)			GDP Impact of Terms of Trade Effects from respective markets (as percent of 1990 GDP)		
	Inter-republican trade	Extra-republican trade	Total Trade	Inter-republican trade	Extra-republican trade	Total Trade
Armenia	-30.2	54.5	-23.8	-11.1	3.5	-7.6
Azerbaijan	-19.1	167.9	-7.3	-6.7	10.5	3.7
Belarus	-28.6	86.6	-20.1	-11.4	7.2	-4.2
Estonia	-35.5	12.7	-32.1	-13.5	0.7	-12.7
Georgia	-33.8	167.9	-20.6	-12.1	12.1	0
Kazakhstan	13.5	81.5	19.0	3.4	4.0	7.4
Kyrgyzstan	-3.7	38.8	1.2	-1.3	2.6	1.4
Latvia	-29.0	3.0	-24.0	-11.6	0.2	-11.3
Lithuania	-36.5	77.5	-30.5	-15.6	5.9	-0.7
Moldova	-44.3	37.7	-38.4	-18.8	2.7	-16.1
Russian Federation	39.3	154.3	79.0	4.5	13.2	17.7
Tajikistan	-17.0	113.7	-6.8	-6.9	8.6	1.7
Turkmenistan	43.3	61.7	50.1	15.9	3.6	19.5
Ukraine	-27.2	56.1	-18.1	-6.4	3.8	-2.6
Uzbekistan	-6.3	49.9	-3.1	-1.9	3.1	1.1