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**The Emergence and Stabilization
of Extreme Inflationary Pressures
in the Soviet Union**

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**THE EMERGENCE AND STABILIZATION
OF EXTREME INFLATIONARY PRESSURES
IN THE SOVIET UNION**

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I. INTRODUCTION

From the mid-1980s, the growing macroeconomic instability in the Soviet Union has been linked to two main factors: the flow problem of a large government budget deficit and rapid credit growth, and the stock "monetary overhang" of excess purchasing power at prevailing levels of controlled prices and interest rates. In this setting, the bulk of excess demand pressure has appeared as "repressed inflation" and a shortage of goods, rather than as open price increases. In 1990, the official inflation rate of around 5 per cent was still at traditional single digit levels, and even the highest alternative estimates would put it well in the lower double digits.¹

From the start of 1991, and slightly earlier in some of the republics, policy clearly shifted towards an attempt to release some inflationary pressure through a combination of administrative price increases and direct partial compensation of incomes. The result was a rapid acceleration of inflation, with official indices in the first quarter of 1991 showing a price level that was 22 per cent higher than in the same quarter of the preceding year.²

In most republics, a much larger jump manifested itself on 2 April, when the Soviet government raised fixed retail prices or price ceilings for some goods, while freeing the prices of others. Official appraisals show that this increased average retail prices by 60 to 70 per cent, but

1. See World Bank (1990, p. 49) and Åslund (1991, p. 5).

2. The Financial Times, 20 April, 1991. In Estonia, the concomitant annual increase in consumer prices was already 100 per cent.

independent estimates have even exceeded 100 per cent (The Economist, 6 April, 1991).

Given that this was a recent administrative increase, its impact on the core rate of inflation is still unclear. While few would probably claim that sustained price rises already reach the 50 per cent per month threshold often used to define hyperinflation, most prognoses are for a further acceleration of price rises. While some foresee a price rise of around 150 per cent during 1991, warnings of a collapse into hyperinflation are becoming ever more common.³ These are sounded by Soviet politicians of different persuasions, and by domestic and foreign economists familiar with the Soviet economy.

Yet, beyond general warnings, we are unaware of studies which have examined the potential for extreme inflation in the Soviet Union more closely. This paper takes a modest step in this direction by asking three main questions:

- 1) Is the Soviet Union, in mid-1991, experiencing an extreme inflationary shock?
- 2) Does the Soviet economy have the propagation mechanisms for translating this into persistent hyperinflation?
- 3) What stabilization policies or other measures could reduce the risk of extreme inflation?

To find the answers, we will examine the historical experiences of countries which have gone through extreme inflation, and compare their pre-hyperinflationary experience to the Soviet situation in mid-1991. Early- and

3. For more modest forecasts, see The Economist, 13 April, 1991. Predictions of extreme inflation are reported in The Financial Times, 26 January, 30 March, and 14 April, 1991.

mid-20th century Europe, Latin America and Israel in the 1980s, and Poland in 1989 are included in the discussion.

These experiences show the difficulty of predicting exactly if and when hyperinflation might occur. Some countries have faced huge terms of trade shocks without high inflation.⁴ In the 1980s, both Mexico and Italy ran budget deficits in the range of 12-15 per cent of GDP, yet price rises never reached hyperinflationary levels.⁵ Factors separating curable, chronically high, and extreme inflation are nebulous and varying.

Uncertainty is exacerbated by the inherent instability of extreme inflation. It is not uncommon to observe long periods in which inflationary pressures appear to be under control. Then, when an invisible threshold has been crossed, or the rules of the game change, any further shock can suddenly "set the house on fire in no time".⁶

For these reasons, we shall not make prognoses about short-run Soviet inflation. Our goal is simply to determine whether the present Soviet Union offers fertile ground for extreme inflation to emerge and grow, and what might be done to reduce this potential. We will do this in several stages. Section II describes the types of shocks which have hit other economies before hyperinflation, drawing comparisons with the present Soviet economy. Section III proceeds similarly for the propagation mechanisms of inflation.

4. Saudi Arabia, for instance, had a 3 per cent rate of deflation in 1986, when the price of petroleum fell sharply.

5. IMF International Financial Statistics Yearbook, 1990.

6. Dornbusch, et.al. (1990, p. 5). For instance, in Argentina in 1981, there was no reason to believe that there would be hyperinflation (Canavese and Di Tella, 1988, p. 170). Bolivia had not had chronic inflation nor were many of the required propagation mechanisms initially in place (Morales, 1988, p. 308). In both cases, inflation occurred very suddenly.

Section IV then examines the additional factors peculiar to the Soviet case. Finally, Section V summarizes our findings and the implications for Soviet stabilization policy.

II. TYPES OF HYPERINFLATIONARY SHOCKS

The shocks which might initiate a hyperinflation can be divided into those emanating from outside the country, and those arising from within.⁷ As many are interrelated, the list of primary determinants would be shorter than the one we present.

A. EXTERNAL SHOCKS

There are four types of external inflationary shocks. The balance of payments impact of a terms of trade deterioration can be counteracted through a devaluation. This raises inflationary pressures, especially when the tradeables sectors are under government ownership and represent a major source of state revenues. Such shocks have been cited by Dornbusch, *et.al.* (1990) as having played a role in the Bolivian hyperinflation. A 22 per cent drop in the terms of trade during 1985-86, mostly from falling agricultural prices, also hurt Argentinian stabilization during the Austral plan.⁸

An economic blockade that reduces the volume of foreign trade is inflationary through its disruptive supply-side effects. As key inputs become difficult to acquire, the productive efficiency of the economy deteriorates. The World

7. A graphical summary of these and other hyperinflationary forces is presented in Table 1.

8. Machinea and Fanelli (1988, p. 145). The inflationary impact of terms of trade shocks on most industrial countries subsequent to the oil price rises of the 1970s is perhaps the most well-known example.

War I blockade of Germany has been ascribed a role in the subsequent hyperinflation (Guttmann and Meehan, 1975).

A *de facto* economic blockade can also be imposed by a country on itself. As in the case of Brazil in the early 1980s, which imposed restrictions on raw materials imports, this usually has a balance of payments motivation (Modiano, 1988, p. 240). The effect on productive efficiency and inflation is the same as that of an externally imposed blockade.

The possibly most common form of external shock is a "debt crisis", or a sudden reversal or curtailment of net financial flows. Without resorting to a partial or full suspension of debt service, this can be met in two ways: improvement of the current account balance via devaluation, or a switch to greater domestic financing, including through money creation. Either response raises inflationary pressures.

The best known example of such a shock is the case of German reparations after World War I. An attempt to increase the German trade surplus through depreciation and relaxed credit led to inflation.⁹ In the early 1980s, the debt shock was linked to a rise in world interest rates that made many countries either insolvent or illiquid. Argentina responded with an inflationary devaluation. Morales (1988, p. 310) also describes how devaluation induced by the 1982 reversal of external financing flows helped trigger the Bolivian hyperinflation.

Finally, the extreme financing needs of a war are a classic source of inflationary pressure. More often than not

9. For more, see Guttmann and Meehan (1975).

the effects are felt after rather than during the conflict, when a combination of direct controls and appeals to patriotism can keep inflationary pressures bottled up. Once the war is over, the controls are eased, the patriotism disappears, and the pressures erupt. Examples include Germany and Austria after World War I and Israel and Argentina in the 1980s.

B. INTERNAL SHOCKS

There are at least six forms of internally generated inflationary shocks. Of these, the most common and almost universal precursor of hyperinflation has been a serious fiscal imbalance, especially when not debt financed.¹⁰

Second, the exchange rate policy adopted by a country can be inflationary in two ways: via its direct impact on tradeables prices, and through its indirect impact on the budget. Dornbusch and Fischer (1986, p. 6) stress the effect of exchange rate collapse in the German case. The mechanisms of budgetary effect are more complex. Overvaluation can reduce tariff revenues by lowering the home currency price of imports. Undervaluation raises the domestic currency cost of servicing foreign debt. The net effect will depend on the relative size of tariff revenues and the stock of debt.

Third, inflation can arise from domestic supply shocks, or exogenous declines in the potential output of the economy at a given price level. These worsen the menu of available

10. For examples, see Machinea and Fanelli (1988, p. 111) for Argentina, Morales (1988, p. 312) for Bolivia, Bruno et al. (1988, p. 288) for Brazil, and Cukierman (1988, p. 49) for Israel. The German hyperinflation has also been linked to deficit spending. For a description of the theoretical link between deficits and high inflation, see Dornbusch and Fischer (1986).

macroeconomic outcomes. An example is the drought preceding Brazil's hyperinflation.

Fourth, real wage growth in excess of the rise in labour productivity is also stagflationary. In Israel, a 16 per cent increase in real wages over three years preceded the hyperinflation of the mid-1980s.¹¹

Fifth, a realignment of domestic relative prices can be inflationary. In a fully flexible economy, relative and absolute wages or prices would not be linked. However, when wages or prices are downwardly rigid, an attempt to keep average prices constant would face the hardest hit sectors with unemployment and a fall in output. The alternative of adjusting relative prices through some overall inflation rate can thus be viewed as being less painful.¹²

Finally, revolution or other forms of political transition could be fertile ground for hyperinflation. When the government is in a weakened state and the population is socially and politically divided, claims on the social pie grow unimpeded. Lacking legitimacy or the means to enforce a temporary reduction in overall claims, and facing growing tax evasion by an unsupportive public, the government must revert to the inflationary mechanism. As Dornbusch *et.al.* note, "'Politically impossible" is the key phrase accompanying the progressive slide into hyperinflation."¹³

11. Cukierman (1988, p. 49). See also the discussion of the Polish experience below.

12. For more on the theoretical and empirical links between relative price shifts and inflation, see Fischer (1981).

13. Dornbusch, *et.al.* (1990, p. 50), who also list some historical cases when this held true. The political economy of hyperinflation and budgetary stabilization is relatively unexplored and deserves much more study.

Machinea and Fanelli (1988,p. 112) cite the interaction of political and economic instability as a key source of disequilibrium in the run-up to Argentinian hyperinflation. Those negatively affected by the stabilization, e.g. some trade unions, exerted pressure to obtain government subsidization of private sector adjustment costs. In Brazil, economic policy was immobilized in the run-up to the 1985 elections. This continued after the election, when the death of the elected president led to a government lacking the legitimacy required to push through major changes. Finally Morales (1988,p. 309) describes the paralysis induced by intense political turmoil as a factor in the Bolivian hyperinflation. Recognition of the impending crisis was delayed, although its symptoms were already present.

C. COMPARISON WITH THE SOVIET UNION OF MID-1991

In mid-1991, the Soviet economy is characterized by the simultaneous existence of nearly all of the noted shocks. The one possible exception concerns the terms of trade. From January 1991, most trade with the former CMEA region (which has accounted for about one-half of total Soviet trade) went over to freely negotiated prices. The price of oil, the major Soviet export to the region, jumped relative to the price of the manufactures imported by the Soviet Union, producing a clear improvement in the terms of trade.¹⁴

The terms of trade for the remainder of Soviet trade will also closely follow the price of oil. As the present

14. While prices of individual goods in barter deals can be misleading (as relative prices are all that matter), the jump in the price paid by Poland for Soviet oil, from one-sixth the world level to near the world level (personal communication, Polish Ministry of Foreign Economic Relations), is indicative.

world price is very close to the average level during the period 1986 to 1990, there are no immediate terms of trade shock of any size.¹⁵ The inflationary pressure coming from the repressed effect of the 1986 decline in world oil prices is discussed below.

Developments in trade volumes represent a serious negative shock. Having demanded a sudden end to the former financing arrangements for CMEA trade, and having rejected barter and other interim arrangements, the USSR has imposed what amounts to a severe economic blockade against itself. This arises from the absence of a workable finance mechanism combined with the paralysing effect of accumulated arrears in trade credit payments. The latter have stayed in the range of \$5-6 billion from the end of 1989. Guarantees by unknown Soviet commercial banks have little value, while the Vneshekonombank guarantees requested by trading partners have been increasingly hard to secure. The fear of the budgetary impact of massive bad loans has also made trading partners reluctant to provide guarantees themselves. Yet, without these mechanisms it is difficult to see much trade occurring. The quantitative effect has been a 45 and 18 per cent fall in imports and exports respectively during the first quarter of 1991.¹⁶

In early 1991, the Soviet Union faced a severe external financing problem. Following an import spurt in 1987-89,

15. The simple arithmetic average of annual world oil prices for 1986-90, as reported in IMF International Financial Statistics, is \$17 per barrel. This is almost identical in real terms to the \$19.73 per barrel price of North Sea Brent on 21 May 1991 (The Economist, 25 May, 1991).

16. The Economist, 20 and 27 April, 1991. The latter includes a one-fifth shortfall in promised oil deliveries to Eastern Europe, which were already below traditional volumes.

during which purchases from the West grew by no less than 47 per cent, the Soviet hard currency debt rose to around \$60 billion at the end of 1989 (Åslund, 1991, pp. 19-20). In 1990, official foreign reserves dropped by \$10 billion to \$5.1 billion (The Financial Times, 31 January, 1991). The combination of \$11 billion of maturing debt, payment of trade credit arrears, and a continuing trade deficit leaves a financing requirement of at least \$15 billion in 1991.¹⁷ While some progress has recently been made in repayment, the combination of an accelerating slump in oil production, lower international oil prices, and bottle-necks in the economy mean that the underlying determinants of "ability to pay" do not appear to be improving. With commercial banks reluctant to lend, the key Soviet options are to seek official assistance or to squeeze imports, neither of which is very attractive.

Finally, the present financial instability can be better understood if one views the Soviet Union as a post-(Cold?) war economy. As in wartime, the combination of controls, coercion and an outwardly unchallenged official ideology helped curb inflationary pressures. As in a post-war economy, their simultaneous erosion in the USSR has in turn released the pent-up pressures.

With reference to internal inflationary shocks, the problem of the Soviet budget deficit is well-known. Due to a complex mixture of policy mistakes (the anti-alcohol campaign, excessive wage liberalization), and unexpected revenue losses (the lower international oil price) and

17. The Financial Times, 31 January, 1991 and The Economist, 16 March, 1991.

expenditures (Chernobyl, the Armenian earthquake), the official deficit rose from 1985 to a peak of 11 per cent of GNP in 1989.¹⁸ While the official 1990 figures are somewhat lower, independent estimates by Åslund have put the deficit at 15 to 20 per cent of the national income.¹⁹

In 1991, the problem appears worse. Deficit estimates for the first quarter range from 26.9 billion rubles by Goskomstat to 34 billion by Prime Minister Pavlov.²⁰ All exceed the planned deficit of 26.7 billion rubles for the whole of 1991. The high figures must come largely from the subsidies to sustain retail prices after wholesale price hikes, and a drop in republican transfers to the central government.²¹

The "anti-crisis program" and subsequent announcements give mixed signals regarding the direction of the budget. A moratorium on new investment based on central government finance is a positive sign (The Economist, 27 April, 1991). However, a presidential decree in March, which lowered enterprise tax rates from 45 to 35 per cent, and the promise in the "9+1 agreement" to abolish a 5 per cent sales tax, are reasons for worry. Further sources of uncertainty are whether reductions in producer subsidies will be fully made up by higher wage subsidies, and whether the military and bureaucracy will face serious budget cuts.

As the Soviet Union has numerous exchange rates, it is not easy to describe developments in this sphere. Following

18. See World Bank (1990, p. 10), which also provides earlier figures. For more analysis, see Åslund (1991).

19. The Financial Times, 27 April, 1991. See also The Financial Times, 4 April, 1991.

20. The Financial Times, 20 and 27 April, 1991.

21. See The Financial Times, 30 March, 1991.

the April retail price rises, the chairman of Gosbank said that exporters were no longer competitive and needed to be compensated, presumably by a further ruble devaluation (The Financial Times, 2 April, 1991). While the tourist rate was raised from 5.74 to 27.6 rubles/dollar, increases in other rates have not followed. However, the increasing role of the highly depreciated auction rate is clearly inflationary.

That the Soviet Union is experiencing a negative supply shock is shown by the accelerating output decline in a period of demand expansion. Official figures for 1990 already indicated a 4 per cent decline in national product (The Financial Times, 6 February, 1991). In the first quarter of 1991, this was between 8 and 12 per cent, depending upon the measure used.²² The predicted decline for the whole of 1991 ranges from 11.6 per cent by Gosplan to 20 per cent by other economists.²³

The supply shock has two noteworthy causes. The first is the secular decline in energy (especially oil) production. Crude oil output fell from 12.5 million b/d in 1987-88 to 11.4 million b/d in 1990. In the first quarter of 1991, production was down 9 per cent relative to the same quarter of the preceding year, and some projections are for the decline to accelerate.²⁴ At the same time, electricity generation capacity has suffered from environmental protest,

22. See The Economist, 13 and 27 April, 1991, and The Financial Times, 20 April, 1991.

23. The Financial Times, 11 March, 1991 and The Economist, 6 and 13 April, 1991.

24. The Financial Times, 20 April, 1991. This has been attributed to a poorly maintained infrastructure, outdated technology, lack of funding for new investments, etc. (The Economist, 13 April, 1991).

while extensive miners' strikes have cut coal production for 1991.

A second supply shock comes from the flourishing of barter trade between enterprises. The extraordinary efforts needed to undertake such commerce reduce the productive efficiency and potential output of the economy.

Real wage trends have exacerbated inflationary pressures, and are particularly emphasized by Åslund (1991). Official estimates put annual Soviet real wage growth in the five years from 1986 to 1990 at 0.9, 2.4, 7.7, 7.3 and 5.0 per cent respectively, or at a cumulative rise of 25 per cent in 5 years (World Bank, 1990, p. 49). The acceleration in 1988 has been attributed to the Law of State Enterprises, which gave enterprise managers increased freedom in wage setting (Åslund, 1991, p. 7).

As the Soviet economy integrates more closely with the rest of the world, it will adopt a relative price structure very different from the current one.²⁵ While administrative adjustments need not lead closer to the new configuration, the recent attempts have combined general and relative price adjustments. For instance, the 60.2 per cent measured rise in the Estonian cost of living between the fourth quarters of 1989 and 1990, is broken up into 100, 22.3 and 19.5 per cent rises in the price of food, industrial goods, and services, respectively.²⁶

Finally, that the Soviet Union is in a deep political transition with a relatively weak government does not need

25. For discussion of the differences between Soviet and western relative prices, see The Economist, 2 February, 1991.

26. Personal communication, Estonian Ministry of Economy.

to be emphasized. The decline of some regions, sectors and classes have increased political pressures at all levels of government. However, governments, oppositions and legislatures have all shown an unwillingness to resist these pressures. For example, the populist Congress of Peoples Deputies has raised many social expenditures, which may be even more out of control than wages (Åslund, 1991, p. 9).

III. PROPAGATION MECHANISMS

To produce hyperinflation, the described shocks must interact with institutional and other mechanisms that can turn a single price rise into galloping inflation. These propagation mechanisms are characterised by their relatively slow workings, with the requisite adaptations in the economy being only gradually introduced.²⁷ They can be grouped into monetary, fiscal and indexation-related mechanisms.

A. MONETARY PROPAGATION

Central bank emission of money is an important way of financing a government fiscal deficit, especially when financial markets are weak. The government benefits either from the "inflation tax" arising from the erosion of its real liabilities under open inflation, or from forcing the public to accumulate low-return savings in a setting of repressed inflation. The base for the inflation tax is roughly proportional to the real money holdings of the public.²⁸ These in turn depend on the availability of other stores of value such as durable goods, equities and real

27. Dornbusch (1990) cite this sluggishness as one of the main puzzles of hyperinflation.

28. More precisely, this "tax" is collected from any government liabilities bearing below-market interest rates.

estate, domestic interest-bearing assets, and foreign assets. The more easily these alternatives are acquired, the lower is the cost of switching out of domestic money, and the more the switching will occur.

As the acquisition of durable goods is rarely legally constrained, the ability to switch out of money is limited by the extent of real private property, domestic financial liberalization, and/or the "dollarization" of the economy. The latter includes legality of, and access to, foreign exchange transactions and foreign bank accounts. All these compel the government to offer creditors more favourable terms for borrowed funds.

A second propagation mechanism is a passive monetary policy, especially under fiscal deficits. This can easily begin and sustain a spiral of inflation, depreciation, and further monetary accomodation. Such a stance is more likely under a weak government fearful of unemployment. For instance, on the eve of the German hyperinflation, Reichsbank governor Havenstein declared it his "sacred duty" to provide credit, claiming that without this the economy could not function (Guttman and Meehan, 1975, p. 33).

A passive monetary stance also arises when authorities place almost sole emphasis on attaining external balance, without adjusting the overall level of absorption. In this situation, a nominal devaluation will quickly bring a proportional change in prices, the accomodation of which feeds back into the spiral.

B. FISCAL PROPAGATION

The main fiscal propagation mechanism is the so-called Tanzi effect. Not only can a budget deficit lead to

inflation, but an exogenous inflationary impulse can generate a fiscal deficit, the money finance of which then feeds an inflationary spiral. This arises when there are long lags between the assessment and collection of taxes. Following an unexpected price rise, real revenues contract automatically and are further reduced by citizens deferring payment to the last moment, increasing the fiscal deficit.²⁹

The Tanzi effect is counteracted by "fiscal drag" from the nominal specification of progressive tax rates, and the reduction by inflation of the real value of government liabilities.³⁰ The net effect on the budget deficit is uncertain, but there is likely to be a threshold beyond which the Tanzi effect dominates, and inflation becomes unstable in the absence of concerted action.

C. INDEXATION OF CONTRACTS

The most visible propagation mechanism for high inflation is the indexation of prices, wages and interest rates. This almost always evolves in response to a previous bout of high inflation, as in Argentina and Israel.³¹ Full indexation, which can include contracts specified in foreign currency terms to be translated at the prevailing exchange rate at the time of payment, occurs only in extreme cases.³² Most often, the formal rules are for wages to increase less than proportionally to the rise in prices. However, as some workers will still reach settlements in excess of the

29. The higher the inflation rate and/or its acceleration, the lower will be real revenues.

30. For further discussion of the Tanzi effect and other channels, see Tanzi (1977) and Dornbusch, et.al. (1990).

31. Dornbusch and Fischer (1986, p. 12) cite the introduction of monthly wage indexation as a key step in the acceleration of Austrian inflation in the 1920s.

32. During hyperinflation, the exchange rate may be the single best indicator of the current price level.

mandated indexation rate, a partial rate would be adopted even if the desired end result was an equiproportionate growth in wage and price levels.

Similarly, financial contracts evolve indexed interest rates, or shrink to shorter maturities. If these developments become extensive, it is no longer possible to lower the real value of government interest-bearing debt, strengthening the likelihood of the Tanzi effect.

At modest rates of inflation, indexation can be based on long lags, which helps to stabilize the propagation of shocks. As inflation grows, economic agents try to raise the velocity of money by shortening intervals between salary payments and/or price adjustments. As the resulting fall in money demand further raises inflationary pressure, the shortening process can become unstable and act to accelerate inflation.

If the economy faces a pure demand shock, full wage indexation is not a barrier to concerted stabilization. In three other cases, it can make inflation intractable:

- 1) When demand pressure is not eliminated. Its full, mechanical accomodation sustains an inflationary spiral which might have been checked by partial indexation.
- 2) Under a negative supply shock. As this lowers the real wage at which full employment will be reached, real wage rigidity will bring unemployment. Attempts to raise employment via demand expansion will only raise inflation.
- 3) Under extensive relative price adjustment. As economic restructuring is induced, part of the capital stock becomes obsolete. Until this is transformed or replaced, and labour is reallocated, the marginal product of labour falls below

its previous value. This has the same effect as a negative supply shock, and is equally explosive if demand is not cut.

D. PROPAGATION MECHANISMS IN THE SOVIET UNION

If the Soviet economy is unambiguously experiencing an inflationary shock, the evidence of a strong propagation mechanism for turning this into extreme inflation is more mixed. At the same time, the mechanisms required are becoming more evident.

Access to domestic non-money financial assets is not great. As privatization has scarcely begun, equities and real estate are difficult to acquire. While fledgeling commercial banks offer interest rates above the token levels of the traditional banks, these are still below any reasonable measure of expected inflation. As the new banks deal almost solely with firms, they provide few new opportunities for households. Their danger of insolvency further reduces the attractiveness of their deposit rates.

Outside the large cities and the Baltic States, growing dollarization has still not reached the levels one might encounter in Latin America. While bans on foreign currency trading have been little enforced, the available volumes of currency do not yet permit its wide circulation. Whether the new Soviet law restricting foreign bank accounts and use of hard currency, effective since 1 April, 1991, will stem dollarization is uncertain.

A very evident propagation mechanism is the passivity of monetary policy. As the banking system under central planning was by definition passive, the continuation of this

modus operandi is not surprising.³³ Furthermore, the noted inability of an unpopular government to resist the pressures to expand money is at play. However, if recent reform plans which include the establishment of an independent central bank come to fruition and are implemented in spirit, this would be an important step.

Wage compensation has so far been *ad hoc* rather than according to an indexation rule. To compensate for the April retail price increases, the government paid a lump-sum of 60 rubles in advance, while savings accounts were increased by 40 per cent but frozen for 3 years.³⁴ While the intention was to raise average monthly wages 50 per cent by April, some estimate the net effect to have been an equiproportionate rise in incomes and prices.³⁵

The stated target rate of indexation has varied but has always been high. Originally, the Pavlov government promised full compensation for increases in the prices of food and basic products (The Financial Times, 13 February, 1991). Later on, the discussions were of partial indexation, with a rate of 85 per cent for wages and benefits being most often heard.

However, except for students and pensioners, the stated rate is almost irrelevant in the current situation. Under

33. The claim by the chairman of Gosbank, that money printing had to be expanded because the previous confiscation of large notes had not left enough cash to pay compensation to wage-earners and pensioners, is one example that monetary policy is viewed as simply accomodating payment decisions made elsewhere. See The Financial Times, 2 April, 1991.

34. The actual compensation is much less, since at the 7 per cent interest rate offered, inflation will erode much of the real principal.

35. The Financial Times, 26 March, and The Economist, 6 April, 1991.

chronic excess demand, the danger is not that wages will lag behind prices (the only case when indexation matters), but that salary growth will outpace inflation. Managers not reporting to a real owner face a soft budget constraint, and have many reasons to grant high wage settlements to ensure labour peace.³⁶ In this case, a ceiling to wage increases is more crucial than a floor.

Furthermore, an announced rate of indexation need not be politically feasible. When the government lacks support, sustained real wage cuts are unlikely to be accepted. As individual republican governments would lose political support while seeing the benefits dissipated over the whole union, they have even less interest in curtailing wage demands. If austerity brings unrest, an unpopular government will grant additional wage increases in an attempt to buy off the public, eroding partial indexation. The offer to double wages of coal miners over two years is a good example (The Financial Times, 9 April, 1991).

Three processes have not progressed much. There is little evidence of financial assets with floating interest rates (possibly because of the poor quality of price indices). Wage payments do not appear to be becoming more frequent. Finally, there are few contracts which are specified in hard currency, to be paid in rubles at the exchange rate on the payment date.³⁷

36. For instance, dockers in Lithuania ended a two-day strike after managers doubled their pay (The Financial Times, 24 April, 1991).

37. One mechanism we have not been able to explore is the *Tanzi effect*. Determining its role if any requires a close examination of both Soviet and republican tax laws, and the indexation and payment delays which they include.

IV. SPECIFIC SOVIET FACTORS

Besides possessing the features of hyperinflating market economies, the Soviet Union has some characteristics which introduce other important differences. These will affect the initiation, propagation and control of inflation. Almost all of them increase rather than reduce the prospects of extreme inflation. In discussing these, we again divide them into monetary, fiscal and indexation aspects.

A. MONETARY FACTORS

So far, the most characteristic feature of the Soviet financial imbalance has been the existence of repressed inflation. While also seen in some other cases (e.g. Brazil), the degree of price control and the cumulative pressure in the USSR are incomparable to most peacetime market economies. Poland in the late 1980s is the most comparable example of repressed hyperinflation.

Dornbusch et.al. (1990,p. 4) note that, starting in a situation of repressed inflation, extensive price liberalization can quickly lead to extreme inflation. Controls suppress the warning signals, giving a false impression of stability which ends when controls are removed without correcting the sources of pressure. Fear of this outcome led the German and Allied authorities to opt for a confiscatory monetary reform in the much more extreme repressed inflation of post-World War II western Germany.³⁸

A central part of the Soviet loss of financial control has been the explosion of inter-enterprise credits, which alone went up from about 3 billion rubles in 1987 to 16 billion rubles in 1988 (The Economist, 20 October, 1990). As ³⁸. For more, see Hansson (1990).

some *de jure* non-financial firms have thus begun to act like banks, their possible illiquidity could spread to other firms and precipitate a financial crisis. The combination of poor information and a collapsing economy makes the likelihood of bad loans extremely high. When these surface, the government may need to restructure the debtor firms to avoid a crisis. The probable budgetary cost of any financial clean-up must be included in estimating future government outlays.

An analogous potential for a government rescue exists in the banking system, which has been termed a "financial Wild West".³⁹ Both traditional banks and the more than 2,000 scarcely regulated commercial banks potentially carry many bad loans which, if properly accounted for, would show that many of these institutions are insolvent. The cost of future loan write-offs by the government must also be included in prognoses of the budget deficit.⁴⁰

The Soviet Union also lacks of experience with indirect macroeconomic control, and does not possess many financial and regulatory institutions which are required in a market economy environment. This increases the possibilities of policy mistakes which could set of an inflationary spiral.⁴¹

39. See The Wall Street Journal Europe, 6 June, 1991.

40. In 1990, the Soviet government wrote off 93 billion rubles of bad loans to the agricultural sector alone (The Wall Street Journal Europe, 6 June, 1991). This has been seen in previous hyperinflations. In Argentina, interest rate rises were induced by the insolvency of some domestic banks. As bank supervision was weak and the government provided full deposit insurance, the growth of debt arrears brought financial fragility to a climax in 1981 (Machinea and Fanelli, 1988, p. 118).

41. Morales (1988, p. 310) traces some pre-hyperinflation mistakes in Bolivia to an isolation from discussions in international academic and official circles.

B. FISCAL FACTORS

In addition to the budgetary impact of any financial bailout, two fiscal properties that characterise the USSR deserve mention. The first is that the Soviet Union faces pressure not only from present deficits, but from the cumulative effect of previous imbalances in the form of the monetary overhang. Their cumulative effect can be measured by the increase in the government's interest bill which would arise from issuing bonds that the public would voluntarily exchange for enough liquid assets to reduce inflationary pressure to near zero.

Second, as McKinnon (1990) and Åslund (1991) have argued, economic decentralization can have a negative impact on government revenues. Under traditional state ownership, most or all enterprise profits automatically accrue to the government. As firms become autonomous or private, government revenues can be maintained only if a well-functioning system of enterprise taxation is in place. As new tax legislation has been slow in coming and enforcement has been difficult, the tax base has been eroded and the fiscal deficit increased.

C. INDEXATION OF CONTRACTS

Possibly the most important differences exist in the area of indexation. As this will be according to official price indices, it is important to recognize that the imperfect inclusion of unofficial prices introduces a crucial bias into Soviet price statistics. As shortages grew and the black market expanded, official indices understated

the true rate of inflation.⁴² If the USSR now undertakes serious price liberalization, these statistics will not capture the diminution of the black market, and will thus overstate the rate of inflation.

In such a case, the *de facto* rate of indexation will exceed the stated amount. If, as is likely, it is not possible to adjust price indices to accurately capture the true average transaction prices, an apparently partial wage indexation scheme could in fact become one of more than full indexation, producing an extremely unstable situation.

D. OTHER FACTORS

Two further factors are operative in the Soviet Union. One which could lead to high inflation is the certainly low elasticities of export supply and import demand, at least in the unreformed economy. Not only are state firms with soft budget constraints less likely to respond to the price signals resulting from devaluation, but extensive licensing and quantitative restrictions in the foreign sector will preclude the desired responses.⁴³ Attempts to improve the balance of payments through devaluation alone could well bring about enormous price rises.

A favourable factor is the large inventory stocks which have been accumulated under repressed inflation. Given a policy of credible stabilization with positive real interest rates, the additional supply of goods from their release would have a short-run anti-inflationary effect.

42. For evidence of hidden inflation, see Åslund (1991).

43. For example, in discussions with the author, Estonian authorities have suggested that volumes of foreign currency exchanged by tourists declined following the introduction of the tourist rate. Given the visa-induced inelasticity of travel and the shortage-induced lack of ways to spend, this is not surprising.

E. COMPARISON WITH THE POLISH HYPERINFLATION OF 1989

Several past experiences would form especially interesting case studies from the Soviet perspective. The Austrian hyperinflation of the 1920s (with successor states to a collapsed empire becoming increasingly autarkic) and the Yugoslavian experience of the 1980s (with a loose federal state and "socialist" economy) are two examples.⁴⁴

For reasons of brevity, we examine a third case which is comparable and recent -- the Polish hyperinflation of 1989.⁴⁵ As in the USSR presently, three developments in the mid-1980s were a prelude to hyperinflation. First, wage setting was decentralised and liberalized, producing a wage explosion. As enterprise managers confronting labour shortages faced weak financial discipline, they had little reason to resist wage rises. In spite of a technically sound adjustment program in early 1988, real wages rose further "because of a profound lack of popular support for the government".⁴⁶

Second, to reverse the losses in competitiveness from wage increases, there was an attempt to devalue the exchange rate faster than the rate of inflation. Neither this nor a subsequent import squeeze were able to improve the balance of payments.

44. It would also be useful to study policies adopted in those cases in which shocks were large but hyperinflation was successfully avoided. These might include France and Italy after World War II, and Mexico in the mid-1980s. Even these are not alike and one cannot draw general conclusions.

45. For this, we refer to the descriptions of Lipton and Sachs (1990) and Sachs and Lipton (1990).

46. Lipton and Sachs (1990, p. 109). The measured real wage rose by 14 per cent in that year, while prices rose by 60 per cent.

Finally, the economy moved to budgetary and financial imbalance.

In this setting, the final collapse was brought on in 1989 by three key factors identified by Lipton and Sachs:

- 1) The March 1989 legalization of the parallel foreign currency market, which supported the flight from currency;
- 2) The adoption, at the request of Solidarity, of a formal 80 per cent wage indexation rule in April, following the round table talks;⁴⁷
- 3) The August freeing of most retail food prices, and sharp reduction of food subsidies by the outgoing Communist government.

By September, hyperinflation was well under way.

A comparable crisis besets the Soviet Union, since the combination of rising wages and low wage discipline, a balance of payments crisis, and a budget deficit are well evident. Dollarization is rising and wage indexation is being put in place. If the parallels can be drawn, then a simple price liberalization could be one event which could take the economy over the threshold of extreme inflation.

V. CONCLUSIONS AND IMPLICATIONS FOR STABILIZATION

Given the severity of the inflationary shock, and the steady establishment of the mechanisms for its propagation, it can be argued that steps to slow galloping inflation in the USSR are more urgent than minor adjustments or measures which gradually put in place the macroeconomic stabilization instruments of a market economy. This entails a

47. As this came on top of increases already granted, measured real wages rose by 45 per cent from August 1988 to August 1989.

comprehensive, consistent strategy which includes short-term emergency measures.

A fully elaborated plan would include measures to reverse all controllable shocks and damp all propagation mechanisms. However, the core of any package likely to succeed would contain the following five measures:

1) A correction of the public sector deficit, which has been a part of all successful stabilizations.⁴⁸ This would include a strengthening of revenues via both emergency short-run measures (higher public sector and utilities prices, shorter tax collection lags, greater tax indexation and enforcement, etc.) and longer-run reforms (a wider tax base, new taxes). On the expenditure side, there would be a similar combination of immediate measures (drastic subsidy cuts, investment moratoria) and longer-term steps (restructuring the government). These cuts would be implemented by officials uncompromisingly dedicated to budget balance.⁴⁹

2) Moving decisively from a passive to an active monetary policy via formal central bank independence. Whether this new body would have the underlying political support to achieve real autonomy is less certain, but heading it by officials with an overtly anti-inflationary outlook would build credibility.⁵⁰

48. Dornbusch and Fischer (1986, p. 6).

49. That technically sound policies must be combined with a clear will to implement them in the face of many pressures is shown in the experience of western Germany after the currency reform of 1948. For a description, see Hansson (1991).

50. Sargent (1982) stresses the common role of a legally independent central bank in quickly ending hyperinflations. See Dornbusch and Fischer (1986, pp. 7-8) for the mechanics of its implementation in Germany.

3) A wage pact, including the disallowance or damping of indexation, and ceilings on wage settlements. A reduced real wage at the start of the program would also make it more credible that inflation will not be used to reduce wages in the future.

4) Foreign assistance in the form of a stand-by agreement for the balance of payments and budgetary support. This was particularly important in the Israeli stabilization, where access to a line of credit raised confidence, even when it was never used.⁵¹

5) A political pact to achieve some social consensus, both across social groups and across regions which choose to remain in the Union. A further round of austerity would only be tolerated if citizens support the government, as in the Polish stabilization of 1990.

The specifics of the Soviet case mean that a successful stabilization will appear harsher than those used in other countries. A program to reduce current fiscal imbalances still leaves the cumulative impact of past imbalances in the form of the monetary overhang. It also does not account for three future possibilities:

- 1) The likelihood of extraordinary expenditures in bailing out financially distressed enterprises and banks;
- 2) The need for serious relative price adjustments and the inflationary pressure this creates;
- 3) The tendency for privatization and decentralization to reduce the flow revenues from enterprises.

51. See Dornbusch *et al.* (1990, pp. 56-7). For the role of foreign assistance in the Austrian and Polish stabilizations of the 1920s, see Dornbusch and Fischer (1986).

Similarly, if indexation rules are used, they must take into account the bias in official price indices which will overstate the true post-liberalization inflation rate. Nominal rates of indexation must be reduced below target levels to achieve stability.

The Soviet economy is distinguished from the other examples we have studied by its large size and closedness. This could influence the source of ultimately explosive shocks and the mix of policies used in stabilization. Domestic price liberalization could constitute a much more severe shock than a sudden devaluation.

As extreme inflation can erupt suddenly, the worst mistake would be to become complacent, taking any apparent calm as an indication that things are under control. The longer stabilization is deferred, the more the propagation mechanisms of inflation become established. This raises the vulnerability of the economy to future shocks, and makes it more immune to subsequent stabilization efforts.

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THE ROLE OF INFLATIONARY SHOCKS IN EARLY 1991

| TYPE OF SHOCK | ROLE IN THE SOVIET UNION? | PROPAGATION MECHANISM | ROLE IN THE SOVIET UNION? |
|---------------------------|------------------------------|---|---|
| EXTERNAL | | Growth of alternative stores of value | Yes, but the current level is still low |
| Terms of trade | Minimal or anti-inflationary | Passive monetary policy | Yes |
| Economic blockade | Yes (self-imposed) | Tanzi effect | ? |
| 'Debt crisis' | Yes | Wage indexation | So far ad hoc but growing |
| Wartime or postwar period | Yes (figuratively) | Interest indexation | No |
| INTERNAL | | Shortening of contract length | Some |
| Fiscal imbalance | Yes | FURTHER SOVIET-SPECIFIC FACTORS | |
| Real exchange rate | ? | INFLATIONARY | ANTI-INFLATIONARY |
| Supply shock | Yes | Repressed inflation | Large existing inventory stocks |
| Real wage shock | Yes | Bad inter-enterprise loans | |
| Relative price shock | Yes | Weak banking sector | |
| Political transition | Yes | Lack of experience with indirect macroeconomic policy | |
| | | 'Privatization effect' on tax revenues | |
| | | Biased price indices | |
| | | Low trade elasticities | |

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