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Hidden and Repressed Inflation in Soviet-Type Economies: Definitions, Measurements and Stabilisation

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5.1 Introduction

Official price trends in the USSR and in the Soviet-type economies have changed markedly through time but have followed a roughly uniform general pattern: hyperinflation at times of war, systemic transition and

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reconstruction; inflation at times of accelerated industrialisation; stabilisation through currency reform and fiscal measures, followed by modest deflation and a record of substantial price stability, recently broken by the spreading—with fewer and fewer exceptions—of renewed open inflation. This general pattern is due to fairly uniform trends in both policy stances and objective conditions: in theory central planning of both physical and financial flows should enable Soviet-type economies to achieve price stability; in practice the persistence of downward rigidity of money wages, the ambitious growth and accumulation targets, as well as adverse exogenous and systemic factors, have frequently necessitated planned or unplanned price increases.

What is particularly striking, however, is not the frequent departure of Soviet-type economies from price stability, since by and large their price record has been comparatively creditable and often even impressive, but *the persistence of unsatisfied demand at the official prices (especially but not only for consumer goods) regardless of whether these prices were being kept stable, or falling, or rising at slow, fast or very fast rates.*

Market clearing at official prices has been a rare and short-lived phenomenon in the economic life of socialist countries, where *shortage* of both production and consumption goods has been the norm (Kornai 1980), while access to goods and services at the official prices has been the privilege of priority sectors and elite groups. Shortages have taken one or more of the following forms: long searches; queues and waiting lists (including sometimes queues to join waiting lists and waiting lists to join queues); transactions at prices higher than official norms even in state shops (sometimes disguised by nominal changes in product or labels) but more often in alternative black, grey and multicoloured markets; forced substitution of available for unavailable goods; inventories below norm held by distributors and above norm by consumers; extensive holdings and use of foreign exchange; excess liquidity; rationing; barter (which through effective demonetisation suggests the existence of hyperinflationary excess demand). The difference between countries and between periods has been one of degree, ranging from market near-clearing at stable and even falling prices in the early 1950s almost throughout the area after the tough measures of post-war stabilisation, to the

simultaneous and dramatic occurrence of shortages in *all* the guises listed above *together with* high official open inflation in post-1980 Poland.

These manifestations of shortage, i.e. excess demand at official prices, are often discussed in Western literature under the heading of 'hidden' and 'repressed' inflation. In Eastern Europe they are rarely discussed, mostly in Hungarian literature as 'shortage' (Kornai 1980, 1982) and in Polish literature (e.g. Herer and Sadowsky 1981), including official documents (Raport 1981), as 'inflationary gap' *(luka)* between the value of available goods and intended purchases out of income, and inflationary 'overhang' (*nawis,* or the cumulated gaps over time). This terminology requires two important qualifications. First, current usage in the literature has been inconsistent but it seems useful and appropriate to define in general 'unofficial inflation' or more precisely 'inflation other than open official', as including both 'hidden' open inflation, i.e. *higher price indices than officially recorded* and 'repressed inflation', i.e. *rising excess liquid balances in the hands of the population with respect to what they would wish to hold if markets cleared at official prices* (see below, Sect. 5.4 on definitions). Second, concepts of hidden inflation require the presence not just of shortage but of *increasing shortage* over time (i.e. increasing excess demand); if excess demand was constant a once-and-for-all increase in official price would be sufficient to eliminate it, and we would not call 'inflation' a once-and-for-all price rise (Portes 1977; though there is inconsistency in usage, even by the same author in the same year, see Portes and Winter 1977, who define repressed inflation as 'the existence of excess demand in the consumption goods market' p. 352). Thus endemic and large shortages at official prices are consistent with falling rates of hidden and repressed inflation (if shortages are increasing at a decreasing rate) or even negative rates (if shortages, though large, are falling).

This paper deals primarily with hidden and repressed inflation in the consumption goods market; it will consider inflationary pressure in general (whether or not it takes the form of open official inflation) with special reference to system-specific sources (Sect. 5.2); discuss briefly the Soviet and Eastern European record of open official inflation (Sect. 5.3); propose a set of definitions for alternative forms of unofficial inflation (Sect. 5.4); review critically a number of existing estimates of 'hidden' (Sect. 5.5) and 'repressed' inflation (Sect. 5.6); sketch an alternative

model for analysing repressed inflation (Sect. 5.7) and draw policy implications relevant for the possible paths towards stabilisation (Sect. 5.8), desirable in view of the costs of unofficial inflation (Sect. 5.9). The main propositions of the paper are summarised in Sect. 5.10.

5.2 Inflationary Pressure in the Socialist Economy

The Soviet-type socialist economy is a monetarist paradise where the quantity theory of money applies in its strictest traditional form, but where there is no scope for monetary policy because the quantity of money is automatically adjusted by monetary authorities to planned physical flows (given planned prices) and to the degree of their actual implementation (see Lavlan 1973; Garvy 1977; Zwass 1979; Portes 1981a). There are two monetary circuits, separate in principle and to a broad extent also in practice. The first consists of cash and cash-convertible accounts for the payment of incomes to households (wages, salaries, scholarships, pensions, state purchases from the private sector; liquid assets of the population) who use them for their purchases primarily of consumption goods and services (and also of some physical and financial assets) from the state sector, as well as for all transactions within the private sector. The second monetary circuit consists of bank-money which enterprises can use for transactions within the state sector but not for the payment of personal incomes. The separation of the two circuits, and the planners' *a priori* attempts at balancing incomes and expenditures of the population through wages policy and control (Adam 1979) is the foundation of the traditional claim that inflation can be eliminated under socialism. The instruments for the *a priori* balancing of incomes and expenditures, however, are fiscal instruments and direct controls of wages and of consumption supply; if institutional or physical constraints in the use of these instruments leave an extant inflationary gap the planners have only one instrument of domestic monetary policy, namely the net sale of financial assets to the population,[1] which is however blunted by

[1] Net of government debt redemptions and increases in bank lending to the public; private loans however are modest and do not give banks tangible opportunities of coping with inflationary pressure by means of a credit squeeze.

the traditional ideological resistance to the payment of attractive enough interest rates for fear of creating a new rentier class. Hence the justification for the neglect of monetary *policy* (as distinct from the behaviour of some monetary aggregates such as money incomes and cash balances of the population) in the analysis of inflationary pressure in the Soviet-type economy (on Soviet-type banking and credit see also: Podolski 1972; Lavlan 1973).

Since the last war, in Soviet and East-European countries price stability has been such a major policy commitment that traditionally victory over inflation is regarded as a systemic feature of socialism and one of its claims to superiority over the capitalist system. For instance Kronrod (1960) claims that 'inflation has been eliminated in a socialist society' (p. 364); Dudinsky (1976) lists lack of inflation as one of the features of socialism (together with full employment, steady economic growth, confidence in the future and social justice) which are most attractive to workers in capitalist countries. Glushkov (1982) claims that 'in the developed socialist society' … 'prices are planned in accordance to the demands of objective economic laws. Planned production and unplanned prices in the market would be incompatible with one another. Stability of the system of prices is assured by the unified and centralised plan for economic development' (p. 24). Similar claims abound. There have been times, however, when open inflation has been the planned instrument for expropriating the private sector or financing investment and defence, or the unplanned result of below-plan economic performance (see next section).

As in the case of capitalist countries, the source of inflationary pressure in Soviet-type economies is to be found in cost factors or in the shortfall of supply with respect to demand, except that these factors (1) exercise a direct influence on market imbalance and neither affect nor are affected by monetary policy; and (2) are influenced by the specific systemic features of the Soviet-type economy.

On the supply side, inflationary pressure can arise from rising costs or from quantity shortfalls. Rising costs may be due to the exhaustion of accessible natural resources, wage growth outstripping labour productivity growth, or imported inflation. Quantity shortfalls arise from: (1) the systematic underplanning (except for the present decade) and underfulfilling of the production of consumption goods and services, built into

the traditional principles of Soviet planning, of priority to heavy industry (or also to the so-called A-sector producing means of production, as opposed to the B-sector of consumption goods); (2) the failure to recognise the existence of downward trends in both labour and capital productivity growth (including occasional negative growth) which have been recorded in Soviet-type systems since the mid-1960s, and which are associated partly with the rising costs caused by exhaustion of labour and natural resources reserves, partly with the failure to adjust the centralised allocation system to these changed circumstances; (3) slow growth of agricultural production due to system-specific neglect of investment in agriculture and the adoption of organisational forms (large state and collective farms) which are ill suited to a spatially-diffused and effort-responsive economic activity such as agriculture. These adverse systemic supply factors are sometimes made worse by random supply shocks such as adverse terms of trade (e.g. those experienced by East European countries over the last decade, with the exception of the oil-exporting USSR), world recession depressing export below plans; natural conditions (draught or flood, heat or frost) affecting especially agriculture, building and transport.

On the demand side, inflationary systemic factors include: (1) pressure on wage rates (under the guise of job classification, career structure, and other discretionary decisions of enterprises causing wage drift) because of full employment of labour, through high labour turnover and informal plant bargaining; (2) over-ambitious investment plans exceeding the absorption capacity of the economy (i.e. its ability to finance, install, operate all the new plant and to import necessary inputs, sometimes investment plans at the lower operational levels adding up to more than the overall centrally planned investment target, and also being systematically overfulfilled); (3) the increasing demands of all other items of expenditures (which like investment might crowd out private consumption), such as public consumption and defence.

Cost-push pressures can be and frequently have been absorbed in Soviet-type economies by means of subsidies from the state budget, either boosting the revenue side of enterprise accounts with subsidies on the goods produced or distributed (e.g. foodstuffs) or relieving the expenditure side of enterprise accounts with grants for investments or other costs.

A typical instrument of price stability in this respect is the 'price equalisation' subsidy (or tax, in the case of deflationary trends; see Wolf 1980) for imported commodities, absorbing into the state budget the effects of imported inflation; Wiles (1973, 1974) advocated its introduction as an anti-inflationary measure in Western countries. All these subsidies, however, do not eliminate inflationary pressure but simply transform a cost-push into a demand-pull; to avoid inflation the subsidy component of the state budget will raise the government borrowing requirement or crowd out alternative items of expenditure. Thus subsidies can be a convenient instrument of inflationary control when cost-push pressures are of a cyclical nature, but are ill-suited to deal with permanent shifts (for instance in terms of trade) and even less with sustained trends (such as rising costs of natural resources, especially in the USSR).

The appearance of a shortfall of supply with respect to demand at constant prices—whether due to demand or supply factors, or the transformation of cost-push into demand-pull through state subsidies; whether planned or unplanned—leaves the planners with a very narrow range of choices: additional external finance, *and/or* inventory falls below normal levels *and/or* open inflation, recorded or unrecorded, in state sales or in secondary markets *and/or* additional cash holdings in the hands of the population over and above what would be held if markets cleared at official prices.

5.3 Open Official Inflation in the USSR and Eastern Europe

Open official inflation in the USSR and the Eastern European countries has occurred at hyperinflationary rates at times of war and reconstruction, especially during the transition to the new system, and at lower but still high rates at times of accelerated industrialisation. For instance in the USSR the official price index, which had risen from 100 in June 1914 to 630 in November 1917, had risen to 6200 in July 1918, 60,500 in July 1919, 129,000 in July 1920 and 1,290,000 in January 1921 (Pindak 1983). This was partly due to the destruction of productive capacity and transport, partly the result of a deliberate monetary policy—theorised

among others by Preobrazhensky —aimed (especially during war communism 1918–21) at gaining state access to real resources, protecting the workers from inflation (whose full blast was felt by the bourgeoisie and the kulaks) through higher wages which fuelled further inflation, and abolishing money through demonetisation of the economy. The New Economic Policy (1921–28) restored a measure of price stability through conventional fiscal and monetary policies, but a further inflationary wave was brought about by accelerated industrialisation and the need to finance it in spite of downward rigidity of money wages, as well as by collectivisation of agriculture (through its adverse impact on agricultural output) and full employment of labour (which caused high labour turnover and wage drift). Table 5.1 indicates retail price indices from official sources and Western reconstructions for the period 1928–47, at a yearly rate of the order of 17–21% *vis-à-vis* a parallel increase of 12.8% in average nominal wages (the implied trend in real wages grossly underestimating average standard of living growth due to the parallel growth of wage labour employment during the period at a rate faster than population growth), wholesale prices of basic industrial goods remaining much more stable thanks to state cross subsidies from consumption to production goods, to supplement the revenue of enterprises producing production goods. 1947 was an anomalous year, with peak prices and a monetary reform aimed at confiscating much of the purchasing power of the population through a change of the currency that converted prices, wages, savings and cash at rates diversified so as to favour wages and saving deposits with respect to cash (Holzman 1955).[2]

The East European countries that joined the socialist bloc after the last War experienced a similar pattern: inflation at a fast and occasionally hyperinflationary rate during the period of transition to the new system and reconstruction and the early stages of Soviet-type ambitious investment policy (for instance, retail prices in Poland increased by 62.4% between 1946 and 1949, and again by 78.5% in 1950–53; in Czechoslovakia by about 64% between 1948 and 1953; the GDR

[2] In the Soviet Union in 1947 all roubles in circulation were withdrawn and replaced with new roubles at a 10 to 1 ratio, while for bank savings and state bonds the conversion ratio was more favourable. On the day after the reform workers were paid their two-weekly wage in new roubles, at a one-to-one ratio (see Holzman, 1955, p. 232 *et seq.).*

Table 5.1 Prices and nominal wages in the USSR, 1928–47

	Average percentage annual increments				
	Retail prices in state and co-operative shops			Wholesale prices of basic industrial goods	Average nominal wages
	Official	Chapman	Holzman		
Period	(1)	(2)	(3)	(4)	(5)
1928–47 of which:	17.2	16.2–17.4[a]	21.3	5.6	12.8
1928–37	20.5	22.5–26.3	24.0	12.2	17.6
1938–40	5.9	8.0–9.7	13.0	6.5	10.3
1941–47	18.1	11.5–12.3[a]	21.4	0.8	8.0

Sources: Average percentage annual increments were computed from the following data:
Col. (1): Chapman (1963, p. 157) for 1928–40; Malafeyev (1964, p. 258) for 1940–47.
Col. (2): Chapman (1963, pp. 81 and 87) for 'all commodities'; her two sets of indices in col. (2) reflect different weights, 1928 and 1937 respectively.
Col. (3), (4), (5): Holzman (1960, pp. 168 and 169); for 1940 his January retail price index—and not that of July—was employed.
From: Pindak (1983, pp. 5–6).
[a]Chapman's data refer to 1948 instead of 1947; they do not comprise, therefore, the peak price 1947.

experienced early hyperinflation), followed by monetary stabilisation mainly through Soviet-type currency conversion at diversified and progressive rates. In Poland in 1950 all prices, wages and saving deposits were converted at a rate of three new to 100 old zlotys, while cash was converted at a 1 to 100 rate, thus confiscating two thirds of the cash in the hands of the population (see Montias 1962, pp. 69–70). In 1952 in Rumania and Bulgaria cash holdings were reduced to one fifth and one fourth respectively of their previous value; conversion rates were progressively unfavourable with respect to the amount converted[3]; a similar reform took place in Czechoslovakia in 1953 (see UN-ECE 1953, p. 32).

[3] In 1952 in Rumania prices, wages and state funds were converted at the rate 100 to 5; cast at a progressive rate ranging between 100 to 1 and 100 to 0.25, savings at progressive rates ranging between 100 to 2 and 100 to 0.50. In Bulgaria in the same year the conversion rate was 100 to 4 for prices, wages and state funds, 100 to 1 for cash, while savings were converted at progressive rates ranging between 100 to 3 and 100 to 1.

There followed, throughout the area, three distinct periods (see Table 5.2), a period of falling prices from the time of stabilisation roughly to the late 1950s; a period of remarkable price stability until after the first oil shock and often well beyond it into the late 1970s (thanks to the delayed impact of oil price rises within CMEA trade, the initial absorption of imported inflation through state budget subsidies, and the rise of external borrowing); and a period of open inflation, fuelled by the gradual diffusion of oil price rises, the mounting cost of price subsidies, the slowdown and occasional fall of external finance and the rising pressure of wages. This tendency has become much clearer in the last couple of years, but (see Table 5.3) has not reached two digit rates with the exception of Rumania in 1982 and Poland in 1980 to date (primarily due to the accelerated growth of money wages in conditions of falling labour productivity, the external credit squeeze and its negative cascade effects on supplies through the curtailment of essential imports, the excessive weight of over-ambitious investment plans ineffectively executed, as well as exogenous factors; see Nuti 1981, 1982). By 1983, when major price increases have been recorded even in Bulgaria, though their impact is still not officially assessed, the GDR is the only East European country that can claim an uninterrupted quarter century spell of price stability.

5.4 Definitions: Unofficial, Hidden and Repressed Inflation

Inflationary pressure which does not take the form of open official inflation (including official open inflation in the collective farm market) can express itself through the market in the form of *open non-official (unrecorded)* and therefore *hidden* inflation and/or be *repressed* and remain at the purely potential state of unused liquid assets in the hands of the population over and above their desired level. Both types of inflation are 'hidden' until they are reconstructed from the inconsistencies of official records, fragmentary direct observations and indirect evidence.

Unrecorded—and therefore *unofficial—open but hidden inflation* can occur for three different reasons. *First, because of price rises above the official level,* either in state shops or in private markets. Official price lists

Table 5.2 Retail prices and nominal wages in USSR and Eastern Europe, 1948–80 (Average percentage annual rates (+ increase / – decrease)

	USSR	GDR	Cze	Pol	Hun	Bul	Rum
1. Deflationary period:	1948–1957	1951–1960	1954–1961	1954–1961	1954–1956		
Retail prices	–8.2	–6.0	–3.5	–3.9	–1.0	–	–
Nominal wages[a]	+ 3.3[b]	+ 2.9	+3.1	+7.2	+ 6.7[c]		
2. Period of 'retail price stability':	1958–1976	1961–1978	1962–1973	1957–1972	1957–1968	1958–1972	1961–1972
Retail prices	0.0	–0.2	1.0	1.3	0.6	0.5	0.4
Nominal wages[a]	3.6	3.2	4.0	5.2	2.7[d,f]	5.4	–
3. Period of open inflation:	1977–1979	1979	1974–1980	1973–1979	1969–1980	1973–1979	1973–1979
Retail prices	0.7	0.2	1.7	5.3	4.1	1.1	1.0
Nominal wages[a]	2.6	3.0	2.9	10.7[e]	4.8[d]	4.5[d]	5.0[d]
Of which: retail prices in 1979	1.1	0.2	3.8	7.1	8.9	4.6	2.0
In 1980	–	–	3.4	–	10.9	–	–
Nominal wages[a] in 1979	2.2	3.0	2.5	8.8[d]	5.8[d]	5.5	4.8[d]
In 1980	–	–	2.4	13.5[d]	2.6[d]	–	–

Sources: Computed from official data of national statistical yearbooks, various issues; International Labour Office, *Yearbook of Labour Statistics,* various issues, and International Labour Office, *Supplement 1981,* April 1981.

From: Pindak (1983, p. 10).

[a] Gross nominal wages in the socialist sector, unless otherwise stated.

[b] Instead of the non-available average nominal wage in 1947, A. Nove's estimate—550 rubles—was used.

[c] Average rate of 1955 and 1956.

[d] Wages in non-agricultural sector.

[e] Net wages.

[f] Average rate for 1958–1968.

Table 5.3 Retail prices in the USSR and Eastern Europe 1974–83 (average annual percentage growth rates)

Country	1971–75	1976–80	1981	1982	1983
All items[a]					
Bulgaria	0.2	4.0	0.5	0.2	N.a.
Czechoslovakia	0.1	2.1	0.8	5.7	0.9
East Germany	–0.3	0.1	0.2	0.0	0.0
Hungary	3.0	7.1	5.0	6.6	7.2
Poland	2.5	6.8	21.2	101.0	25.0
Rumania	0.5	1.4	2.0	16.0	5.7
Soviet Union	–0.1	0.7	1.4	3.4	N.a.
Food[b]					
Bulgaria	0.6	6.2	0.3	0.2	N.a.
Czechoslovakia	–0.1	1.2	0.0	10.6	0.3
East Germany	0.2	0.0	0.0	0.0	0.0
Hungary	2.2	7.3	3.1	8.2	5.6
Poland	2.9	7.5	30.3	125.0	26.0
Rumania	1.1	1.0	1.7	N.a.	N.a.
Soviet Union	0.3	0.4	1.9	3.8	N.a.
Non-food items[c]					
Bulgaria	–0.1	2.4	0.7	0.1	N.a.
Czechoslovakia	0.2	2.8	1.5	1.5	1.5
East Germany	–1.0	0.2	0.5	0.0	0.0
Hungary	3.7	6.9	6.6	5.5	8.8
Poland[d]	2.5	6.5	13.1	85.0	19.0
Rumania	–0.3	0.6	2.3	N.a.	N.a.
Soviet Union	–0.3	0.8	1.6	2.3	N.a.

Sources: 1980–82: official East European and Soviet statistics. 1983: estimates prepared by the Centrally Planned Economies Service of Wharton Econometrics on the basis of preliminary official statistics published in 1983 plan, fulfilment reports and other official East European statistical sources.

From: Vanous (1984)

[a] In most cases including services.

[b] In most cases including prepared food in restaurants and enterprise cafeterias. Alcohol is included in this category (even in the case of Poland).

[c] In most cases, this item does not include services. It covers primarily prices of industrial consumer goods.

[d] Excluding both services and non-consumption goods.

may lag behind actual prices charged by retailing organisations within their discretionary powers (e.g. for new products, including pseudo-novelties). Quality may deteriorate at constant prices. State goods may be sold at prices higher than state prices by dishonest retailers charging a

premium to customers or by buyers reselling in a private market; private producers may supply additional consumption goods and services also at a price higher than the official price (of course profits from private production or redistribution should then be included on the income side of household accounts). When these price premia appear or rise, actual open inflation is higher than officially recorded.

Second, unrecorded open inflation can arise from *quantity weights in official* price indices understating the relative weights of goods whose actual market prices (whether or not equal to the official price) rise relatively faster. In principle quantity weights different from those appropriate to actual prices could lead to a price index bias either way, but systematic official understating is the likely result of cosmetic data manipulation by the authorities, information lags and higher than official price rises. *Third,* unrecorded open inflation can arise from *progressive forced substitution* by consumers of goods which are available at their official price for goods which are not available; usually higher priced substitutes replace cheaper (often subsidised) goods. The use of actual quantity weights instead of dubious and conveniently changing official baskets captures both the possible understating of inflation with respect to equilibrium weights and the inflationary effect of forced substitution over time (though not the loss of consumer surplus involved in the limited access to shortage goods, implicit in forced substitution). As Nove puts it, 'In any system, when price controls exist and the product mix can be varied, the price index will *always* understate price rises …' (Nove 1981a, p. 145).

If, directly or indirectly, a price index is constructed reflecting actual prices and actual (Laspeyres or Paasche) quantity weights, the actual open inflation rate p can be decomposed into its recorded and unrecorded components, respectively p_r and p_u, given the relationship $(1 + p) = (1 + p_r)(1 + p_u)$. Rates of unrecorded open inflation calculated for each period putting the previous period's index equal to 100 are cumulative over time, but unrecorded open inflation is not 'repressed' in any conceivable sense, as it is an effective outlet for inflationary pressure, and therefore is not cumulative in the sense of contributing to inflationary pressure in the following period through accumulated pent-up demand, as in the case of excess liquid assets of the population (inflationary gap and overhang).

Repressed inflation is rising excess demand which does not take the form of higher prices but remains in the hands of the population as excess liquid assets over their desired level. Thus its definition and measurement requires the prior definition and measurement of 'desired' liquid assets. *In a trivial sense all liquid assets could be considered as desired* because asset holders can always convert any surplus holdings into any good in the free (legal or black) market or into non-shortage goods in the official market. Therefore in the strictest sense there could be 'excess' asset holdings only for inflexibly law-abiding citizens with zero storage facilities, or for people deterred from transacting in the markets to the full extent of their intended purchases because of particularly high transaction costs (in the state market because of abortive searches, queues and waiting; in the free market because of legal and moral restraints, its thinness and inconvenience). Otherwise liquid asset holders will have expressed effective demand up to the point where the marginal utility of current purchases of higher-priced goods in the free market or of forced substitution goods in the state market is equal to the discounted marginal utility of future prospective purchases of goods at official prices (weighed by the probability of their future availability) or at expected free prices, or of additional leisure at the going wage (at least within the period obtainable through voluntary unemployment in between jobs). By and large, any intended purchasing power which cannot satisfy itself in the state market will push up prices in the free (legal and black) market where goods purchased from the state market are re-traded and newly produced goods from the private sectors may be sold, up to the point where demand for liquid assets for transaction and speculation purposes is raised to the level of existing liquid assets; barring extreme hyperinflationary situations where the economy is effectively demonetised, monetary equilibrium in the economy as a whole will be reached or (within the limits set by high transaction costs) approached. *Nevertheless, a significant part, if not all, of liquid assets held by the population in a situation of imbalance in the state market at official prices will be excessive with respect to the assets which the population would wish to hold if it could convert them into goods in that market at those prices.*

Government internal and external borrowing can ease inflationary pressure but the size (and growth) of debt cannot be properly included in excess demand (and repressed inflation), except for the component of debt (and its growth) on which the government may have defaulted.

Once excess demand in the state sector at official prices rises above a critical threshold, repressed inflation steps in; open inflation in free markets can lead to overall monetary equilibrium in the economy as a whole but this is consistent with persistent disequilibrium *in the state sector*. In fact the entire excess of liquid assets over the level which would be desired at the given state price level if the state market had been clearing for a long time, *plus* the liquid assets which the population—having experienced market imbalance instead—would wish to convert speculatively into goods if supply suddenly became infinitely elastic at state prices, at any moment of time is pressing on the state market backing intended purchases with the necessary spending power. Moreover, any unsatisfied demand (overhang) existing at the beginning of a period plus any inflationary gap (intended purchases out of disposable income not matched by goods at official prices) will be carried over into the next period; a sequence of small gaps therefore can cumulate over time to a serious overall level of excess demand. While it is correct to define as repressed inflation, strictly speaking, only the growth rate of this excess demand, past repressed inflation is cumulatively pressing in current markets and would have to be added to current open inflation *in its cumulative entirety* if it were to be transformed into open inflation (its additional contribution to open inflation of course depending on the length of the period over which it was made open). A zero or negative current rate of repressed inflation is therefore consistent with the possibility of massive current imbalance in the state market, which would require an injection of goods, or a tax on liquid assets or a higher rate of open inflation than would otherwise be the case, at rates inversely proportional to the period of time over which the stabilisation is attempted.

There is a connection between unofficial/unrecorded inflation, *plus* officially recorded inflation in non-state markets (such as kolkhozian markets), and repressed inflation. Namely, if the sum of the first two types of inflation is zero (or small), it can be conjectured that the monetary magnitude of excess demand has not grown (much) relatively to

money income; however excess demand can still be large, and—following this line of argument—it will have grown approximately as fast as money income.

5.5 Estimates of Hidden Inflation

Three basic methods have been used to estimate inflation rates over and above official levels (including official inflation in recorded legal markets): the direct computation of price indices from available information about quantities and prices of individual categories of goods; the calculation of deflators implicit in indices of monetary and real magnitudes; the purchasing power parity approach to black market exchange rates.

Western economists started recomputing their own price series in the early 1960s: Michal (1971) for Czechoslovakia, Nutter (1962) and Chapman (1963) for the Soviet Union. Michal, for instance, found that retail prices rose in Czechoslovakia by about 64% between 1948 and mid-1953, instead of the officially reported stability depicted in Table 5.2; Chapman's estimates for Soviet retail prices in 1928–47 diverge less from official indices but are also higher than them (except for 1941–47 due to non-comparability of periods; see Table 5.1). The long duration of the price stability achieved in the mid-1950s somewhat lessened interest in independent computations of this kind. When the reliability of official statistics began to be suspect again, after incidents such as Polish underrecording of the 1970 price increases and similar *prima facie* cases for challenging official data, convenience and lack of data led Western economists to use indirect methods.

It is well known that dividing an index of expenditure at current prices by a Laspeyres quantity index one obtains an implicit Paasche price index. Howard (1976a, 1976b) used real consumption estimates independently constructed by Bronson and Severin (1966) and current consumption expenditure indices to calculate lower and upper limits for Soviet state retail and general consumer 'true' or 'actual' price indices. The lower limit is calculated by assuming that there was no hidden inflation in the food sector; the higher limit by assuming that the hidden inflation in food is equal to that in durables and 'soft' goods (see Table 5.4). Howard found

Table 5.4 Howard's estimated and official indices for prices and sales, USSR 1955–72

	State retail price index			General consumer price index			Real sales index on state and co-operative retail market		
	Official	Minimum estimate	Maximim estimate	Official	Minimum estimate	Maximim estimate	Official	Minimum estimate	Maximim estimate
1955	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1956	100.0	101.9	102.5	98.8	100.9	101.5	108.7	106.4	107.0
1957	100.0	104.8	108.7	98.4	103.3	106.9	124.0	114.6	118.8
1958	102.2	106.7	107.8	101.0	105.4	106.4	131.7	125.2	126.4
1959	101.4	106.1	107.3	100.1	104.7	105.8	142.3	133.5	135.1
1960	100.7	106.0	108.0	99.6	104.7	106.5	156.7	144.9	147.6
1961	100.0	104.5	105.7	99.7	103.7	104.8	162.5	152.8	154.6
1962	101.4	107.2	108.0	101.7	106.8	107.5	172.6	161.0	162.2
1963	102.2	108.7	108.9	102.9	108.6	108.8	180.8	167.7	168.0
1964	102.2	108.3	108.9	103.3	108.5	109.0	190.4	176.3	177.3
1965	101.4	109.6	111.6	101.6	108.9	110.9	209.1	187.0	190.4
1966	100.7	108.7	110.4	100.4	107.7	109.3	227.4	203.9	207.1
1967	100.7	109.5	112.2	100.4	108.4	110.9	248.6	219.4	224.8
1968	100.7	110.1	113.5	100.5	109.1	112.2	269.2	235.5	242.8
1969	100.7	111.3	115.3	101.4	110.9	114.5	288.9	249.5	258.5
1970	100.7	112.3	117.3	102.0	112.2	116.7	310.6	263.6	275.3
1971	100.7	114.1	120.5	101.4	113.4	119.3	331.7	273.8	289.1
1972	100.7	115.1	122.6	102.1	114.8	121.7	354.3	286.7	305.4

From: Howard (1976a), p. 607

'true' price indices substantially but not devastatingly higher than the official indices, 'true' inflation still being contained within 0.8–1.2% per annum in 1955–72; Howard also found that state and co-operative retail sales have not increased as much as suggested by official indices over the period.

Howard's approach was severely criticised by Rosefielde (1980) and further debated by the two authors (Howard 1980; Rosefielde 1981a). The main point of the debate is the legitimacy of using, for the calculation of an implicit deflator, a quantity index which does not embody the same weights used to construct the monetary expenditure index, and therefore the reliability of Howard's estimates. Admittedly the 'true' price index calculated by Howard is, as Rosefielde contends, a quantity/price 'hybrid'; it remains to be shown, however, that the use of more accurate weights would yield drastically different results. As a 'rough estimate', in Howard's words, the 'true' price index provides an interesting check to the hypothesis of a close-to-true Soviet official index. (Similar rates were computed by Schroeder and Severin 1976, at the yearly rate of 1.3% in 1955–75).

The same line of reasoning followed by Howard is implicit in Portes (1977), who compared directly average increases in money wages (which nobody ever suggested are under-recorded) and real consumption (which he takes from official data, regarded as reliable) in order to obtain indirect confirmation of the thesis that officially recorded inflation was by and large correct in the 1955–75 period. Alton et al. (1979) used their own independent estimates of real consumption growth for the CMEA Six to establish the 'true' inflation rates for 1970–78, which are substantially higher (though still modest by Western standards and in the one-digit range) than official rates except for Hungary (see Table 5.5; for a discussion of Alton's results see also Kohn 1980). Presumably Rosefielde's objection to Howard applies with the same strength to Alton's estimates.

If the purpose of the 'true' indices was that of assessing the truthfulness and efficiency of statistical offices in recording prices and relative quantities of all goods leaving the state shops and all those exchanged in the official non-state sector, then the use of own recalculations or implicit

Table 5.5 East European alternative consumer prices indices

	Price indices 1970 = 100			Average annual change (%)		
	1975	1978	1971–75	1976–78	1978	1979
Bulgaria:						
Official: state retail trade[a]	100.9	102.8	0.2	0.5	1.2	[b]
Official: co-operative market[a]	123.6[c]	137.6	4.3[d]	5.5	[b]	[b]
Alternative	116.0	129.1	3.0	3.2	2.5	[b]
Czechoslovakia:						
Official: consumer retail prices[a]	100.7	103.6	0.1	0.9	0.9	2.5
Alternative	111.4	116.2	2.2	1.6	1.8	[b]
German Democratic Republic:						
Official: consumer retail prices[a]	98.4	98.2	-0.3	0.0	0.0	[b]
Alternative	103.3	108.6	0.7	1.3	0.6	[b]
Hungary:						
Official consumer prices[a]	114.5	130.8	2.9	4.3	4.6	9.0
Alternative	122.4	139.8	4.1	4.4	4.5	[b]
Poland:						
Official: consumer retail prices[a]	113.3	134.1	2.5	5.9	8.1	[b]
Alternative	131.8	168.5	5.7	8.0	8.9	[b]
Rumania:						
Official: commodity prices and service tariffs	102.6	105.4	0.5	0.7	1.5	2.5
Alternative	[b]	[b]	[b]	[b]	[b]	[b]

Source: Alton *et al*. (1979).
[a] The official price indices are described in detail in Alton (see source).
[b] Not available.
[c] 1977
[d] 1976–77

deflators could be good enough. But for discussing hidden and repressed inflationary processes, however, these indices have a major defect. A 'true' price index in fact ought to record ideally the price actually paid *by ultimate users,* both for goods originally purchased in state shops and for goods which private producers might supply. At the same time, 'true' income indices ought to include the total increment that the value of state goods acquire in the (legal or illegal) process of redistribution, and

the total value added in private production, so as to make price and income indices mutually consistent.[4]

The existence of a two-tier market, consisting of controlled and (legal and illegal) free segments (see Katsenelinboigen 1977; Morton 1980; Bauer 1983), is fully recognised and modelled in the literature on the 'second economy' (e.g. G. Grossman 1977, 1985; O'Hearn 1980) but is not fully modelled and measured in the literature on unofficial inflation, where the dominant model is that (exemplified by Barro and Grossman 1974) of the 'rationed' quantity-constrained consumer (and firm) and the measurement of market phenomena excludes both the private retrading of state goods and non-state production outside the collective farm sector (which is played down anyway in view of its small relative weight in total consumption expenditure, e.g. by Portes 1979, p. 329). Yet consumers in Soviet-type economies are not at all technically 'rationed' in their *overall* budget constraint; they are only 'rationed' (whether through coupons or at random) in their purchases from state shops at official prices. Their position is that of a consumer facing a two-part tariff with a high marginal price, and with an option on purchases at the lower price of the first part of his tariff—an option which however is not being honoured and which he relentlessly seeks to realise ready to switch all his higher part tariff expenditure and buy more if he only could at any time. Such a consumer would not be regarded as quantity rationed, nor should the consumer in Soviet-type economies. The thinness of the free (legal and illegal) market where state goods are retraded and non-state goods are sold—if that market *is* thin—makes its quantitative impact on hidden inflation small, but the very fact that consumers can, if they wish, convert liquid assets into goods and services in free markets has a major implication also for the definition and measuring of repressed inflation, because the opportunity of transacting in secondary and primary non-state markets naturally makes all liquid assets 'desired'.

[4] Nove's guess-estimate of Polish hidden inflation at 8% in 1975 (Nove 1979) is rejected by Portes because, given official estimates of nominal incomes and consumption price index, would imply 'that real incomes actually fell that year!' (Portes 1984). Yet if, say, half the hidden inflation was due to transactions in private and secondary markets, nominal incomes would also be higher, by 4%, and Nove's assertion – though unsupported – would at any rate be perfectly plausible.

Table 5.6 Culberston and Amacher's estimated average annual rates of inflation, 1963–70 (purchasing power parity method)

Country	Officially reported open inflation (%)	Culbertston and Amacher's estimates (%)
Bulgaria	1.1	3.4
Czecholsovakia	1.2	5.0
East Germany	0.0	3.4
Hungary	0.9	4.1
Poland	1.2	5.5
Rumania	0.4	6.3
USSR	0.1	8.6

Source: Culbertson and Amacher (1972). Estimated actual inflation is equal to US rate of inflation plus domestic currency depreciation with respect to the US dollar in the black foreign exchange market.

Culbertson and Amacher (1972) apply the purchasing power parity theory of exchange rates to black markets for foreign exchange in CMEA countries and estimate actual inflation rates by comparing changes in the black rate of the US dollar—regarded as an equilibrium rate—with trends in the US consumer price index. Any depreciation of the national currency *vis-à-vis* the US dollar is attributed to differential inflation with respect to the US. Their estimates are summarised in Table 5.6; like the other estimates reviewed here, actual inflation is estimated at a substantially higher but still one-digit level. If it worked, this method of indirect estimate of actual inflation rates would reflect trends in the marginal cost to consumers of acquiring goods in free markets, i.e. the inflation rate in those markets rather than in the average cost of living. This method, however, is subject not only to the customary reservations applicable on the purchasing power parity approach to market economies (the neglect of capital flows, the choice of weights, the use of average instead of marginal concepts, etc.) but also to system-specific reservations: (1) no black market price in a two-tier black/white market can be regarded as an equilibrium price; it is usually higher than the equilibrium price but not necessary by the same proportion at different times; (2) black market rates are affected by a number of variable demand and supply factors, which have nothing to do with underlying trends in hidden inflation, such as remittances from abroad, degree of foreign tourist surveillance, toughness of penalties, foreign travel opportunities, official attitude towards

emigration, etc.; (3) black market rates have a floor below which the dollar will not fall, given by the ratio between the domestic price of goods (like vodka and cigarettes) widely consumed and with semi-monetary qualities in personal exchange, and their dollar price in special state shops (Beriozka, Pewex, Cedok, etc.) for sales in hard currencies. Thus if the dollar price of a bottle of vodka in a Pewex shop is $1 and its zloty price in ordinary shops is zl. 700, the black market rate for the US dollar will not fall substantially below zl. 700. Thus trends in black market exchange rates reflect the vodka purchasing power parity in domestic ordinary and special state shops, or the equivalent rate for other goods supplied in both kinds of shop at more advantageous rates if supplied and demanded in sufficiently high quantities to make them the marginal rate, rather than any comparison of generalised purchasing power parity. Vanous (1984) suggests the same approach with reference to the Deutschemark, but the same reservations apply; since arbitrage in black markets for foreign currency is far from perfect, cross rates and therefore inflation estimates will differ with the hard currency actually used in the comparisons.

A more interesting and imaginative use of purchasing power parities, which does not lend itself to the criticisms raised here, is made by Askanas and Laski (1985) who, starting from a bilateral comparison of consumption levels in Poland and Austria in 1964, 1973 and 1978 (estimated by the Central Statistical Offices of the two countries in the currencies of either country) calculate the implicit price indices for both countries. They find that implicit indices differ from official statistics and infer that over the period considered either Austrian actual inflation has been over-recorded and has taken place at 3.0% per year instead of the official 5.3%, or Polish actual inflation has been at 5.2% instead of the official under-recorded 2.9%. Since this kind of problem does not arise in similar comparisons among Western countries, and the authors have no reason to believe that Austrian inflation—lowest among market economies in Europe—has been overvalued, they conclude that Polish inflation has been 5.2% instead of 2.9% over the period.

In general, there is an 'informal consensus of experts' that 'official inflation statistics are most reliable for Hungary, followed by Czechoslovakia, East Germany, Bulgaria, Poland and Romania' (Vanous 1984). When inflation is officially understated, if this is due to actual

prices in state markets being higher than official price lists no policy measure is required except official admission that prices are higher than previously claimed; a once-for-all uplift in official inflation (which can be substantial due to the cumulative effects of even small discrepancies over time) will suffice without altering the population's purchasing power. If official understatement of inflation is due to free (black and legal) markets being under recorded, the case for closing the gap between the two price levels is made stronger. Even the total coincidence of 'true' and 'official' inflation rates does not rule out the existence of a possibly large inflationary overhang, already in existence at the beginning of the period for which the comparison is made and growing through time at the same pace as income and expenditure.

The existence and measurement of hidden inflation outside the sphere of consumption goods has also been widely debated (see for instance Becker 1974; Nove 1981a, 1981b; Cohn 1981; Rosefielde 1981b, 1983; Steiner 1982, 1983). The question is interesting for the overall assessment of economic performance in Soviet-type economies, and in particular of the actual size and growth of investment and defence outlays. Inflationary pressures outside the consumption goods sector are bound to spill over into it through direct competition between consumers and firms for some goods and through substitution processes; non-open inflation for non-consumption is likely to take more the form of repressed than hidden inflation, in view of greater restrictions and easier monitoring of financial transactions between firms with respect to redistributive transactions between consumers.

5.6 Estimates of Repressed Inflation

Visible signs of frustrated spending intentions, such as queues, are not by themselves conclusive evidence of repressed inflation. They are not necessary, because spending intentions may be so totally frustrated that queueing is not worth one's time.[5] They are not sufficient, because queues may

[5] 'Do you often have queues as long as these?' 'No, not very often. Only when there are goods in the shops' (Polish humour).

be due to the inefficiency[6] or the under provision of distributive services (Turcan 1977), or to *relative* prices (instead of the overall price index) differing from market-clearing prices (Delhaes 1978; Podkaminer 1983[7]), and not necessarily to the presence of excess demand at official prices. Even if there are visible signs of frustrated spending intentions, they can be misleading for the measurement of excess demand and above all of its rate of change (only which is, strictly speaking, repressed inflation): declared demands may be greater than intended purchases, because they discount a scaling down process (just as in an expectedly oversubscribed share issue in a market economy; a household may be queueing in more than one queue for a single intended purchase); queues may get longer because of an improvement rather than a worsening of the state of supplies.

By itself the increase (even if substantial) of liquid balances in the hands of the population, relatively to income or sales, is also neither necessary nor sufficient as an indication of repressed inflation. Liquid balances may be accumulated because of systemic lack of access to less liquid forms of holding wealth (land, plant, non-state bonds, shares, etc.). Open (official or unrecorded) inflation might require the accumulation of liquid assets to raise transaction balances whose real value has been lowered by inflation. Cash requirements relative to purchases may increase because of the increasing share of transactions taking place in the second economy (Grossman 1977). A more erratic pattern of supply, without any alteration in the overall balance between supply and demand, may raise required cash holdings, desired for speculative purposes; Green (1978)

[6] Often simply moving few people from the queue to behind the counter would eliminate queues and save time all round. Turcan (1977) suggests that in Poland in the mid-1970s queues were due to 'organisational and human factors' more than to shortages (p. 136). Under provision of distributive services is of course by definition excess demand but only for the services, not the goods; a small excess demand for distributive services may appear as large excess demand for goods, because these goods must be jointly purchased together with the distributive service associated with their sale.

[7] Comparing Polish with Italian and Irish data, Podkaminer estimates excess demand for commodity groups and the price changes necessary to eliminate them in Poland in the period 1965–78. He claims that food demand would have been consistently *lower* than supply had it not been for spillover demand (forced substitution) due to excessively low prices in the 'rent' and 'rest' commodities. To eliminate imbalance food prices should have been *lowered* by 15%, provided that other low-price goods were made correspondingly dearer (Podkaminer 1983, p. 179).

likens this phenomenon to 'the demand for cash balances among New York drug addicts' —or, one might add less dramatically, among antique dealers everywhere.

Nevertheless, the *coexistence* of visible officially recognised signs of frustrated spending intentions *and* the parallel accumulation of increasing substantial liquid assets relative to incomes and sales had been widely taken as a *prima facie* case for presuming excess demand and repressed inflation, or at any rate for considering it as a hypothesis worthy of testing and measurement.

Pindak (1983) is typical of a simple and direct approach to repressed inflation (another instance is Cassel 1984). First indirect evidence of excess demand is considered, such as the falling share of goods officially recognised as not experiencing 'supply difficulties' (for Czechoslovakia in the 1970s, for instance, see Table 5.7); then the ratios of cash and non-cash financial assets to other variables are regarded as indicators which 'express the processes of repressed inflation' … 'Even if the exact level of forced savings remain unclear …' (p. 33). These indicators are the average saving propensity, the ratio between cash increments and total income, and especially the income velocity of financial assets (which is reproduced from Pindak in Table 5.8). However as we have just noted there is no systematic necessary relation between these indicators and repressed inflation; moreover Pindak's conclusion that 'the GDR emerges as the country with the most virulent repressed inflation' is contrary to casual observation and other evidence (Flaetgen 1985; see below). Birman (1980a) claims that 'an overwhelming part of all savings is forced' (p. 88),

Table 5.7 Share of goods without supply difficulties in Czechoslovakia, 1972–78

Period	Foodstuffs (%)	Industrial products (%)
1972	58.5	52.0
1973	72.5	43.2
1974	75.0	36.6
1975	66.7	28.2
1976	47.1	28.7
1977	27.9	20.7
1978	35.9	19.0

Source: *Politicka ekonomie*, Prague 1979, Vol. XXVII, p. 458.
From: Pindak (1983), Table 4.

Table 5.8 Pindak's income velocity of household financial assets, 1955–79 (for Czechoslovakia, the GDR, Hungary, Poland and the USSR)

	Ratio between income and household cash				Ratio between income and household non-cash financial assets				
Year	Cze	GDR	Hun	Pol	Cze	GDR	Hun	Pol	USSR
1955	7.4	4.7	–	10.7	15.0	8.5	–	834	10.1
1956	6.1	4.1	9.9	8.1	11.1	7.1	119.8	58.2	9.2
1957	5.5	3.7	10.3	7.9	8.6	5.2	60.5	32.0	7.8
1958	4.7	3.9	9.3	7.3	7.0	4.5	36.6	26.3	7.7
1959	4.3	3.0	7.6	6.9	6.1	3.9	23.3	19.0	7.2
1960	4.2	2.6	6.8	5.5	5.7	3.3	17.0	13.6	7.1
1961	3.9	2.4	6.4	5.5	5.2	2.9	14.6	13.6	7.2
1962	3.6	2.3	5.9	5.0	4.8	2.7	11.7	11.0	7.1
1963	3.5	2.1	5.1	4.6	4.5	2.5	9.0	8.7	6.9
1964	3.2	2.0	4.5	4.2	4.2	2.3	7.1	7.6	6.7
1965	3.1	1.8	4.1	4.0	3.9	2.1	6.1	6.9	6.0
1966	2.9	1.7	3.9	3.8	3.7	1.9	5.8	6.2	5.4
1967	2.7	1.6	3.9	3.5	3.5	1.8	5.8	5.5	4.9
1968	2.7	1.5	3.6	3.3	3.5	1.7	5.3	5.2	4.5
1969	2.8	1.4	3.3	3.1	3.6	1.6	4.8	4.7	4.0
1970	2.5	1.3	3.0	3.0	3.2	1.5	4.9	4.4	3.6
1971	2.3	1.3	3.0	2.9	2.9	1.5	4.3	4.2	3.3
1972	2.1	1.3	2.9	2.8	2.6	1.4	4.1	3.9	3.1
1973	2.0	1.2	2.7	2.5	2.4	1.4	3.9	3.6	2.9
1974	1.9	1.2	2.6	2.3	2.3	1.4	3.8	3.2	2.7
1975	1.8	1.2	2.5	2.3	2.2	1.3	3.6	3.2	2.4
1976	1.8	1.2	2.4	2.2	2.2	1.3	3.4	3.2	–
1977	1.7	1.1	2.3	2.3	2.1	1.3	3.2	3.3	–
1978	1.7	1.1	2.2	2.2	2.1	1.2	3.0	3.2	–
1979	1.7	1.1	–	2.2	2.1	1.2	–	3.2	–

Sources: Computed from the following data:

(a) For Czechoslovakia, the GDR, Hungary and Poland for 1956–75, Rudcenko (1979). The corresponding data for 1976–79 were taken from national statistical yearbooks, various issues.

(b) For the USSR, the data on savings deposits of the households from *Narodnoe khoziaistvo SSSR,* various issues*;* estimates of household incomes from Schroeder and Severin (1976) (years 1956–59 and 1961–64 were extrapolated).

From: Pindak (1983), Table 5.

talks of 'the colossal surplus of money' and the 'crisis in the circulation of cash' (p. 90; see also 1980b).

Official recognition of excess monetary balances of the population in Soviet-type economies first came in the 1981 official report by the Polish government on the state of the economy (from which Table 5.9 is taken;

Table 5.9 Fundamental magnitudes illustrating the formation of market equilibrium in Poland, 1970–80 (current prices, *zl. bn*)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	Second half year 1980	First quarter 1981
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Sales of goods to the population	395	429	482	544	625	713	813	920	1000	1102	1207	630	309
Sales of services	70	75	82	92	104	119	134	150	162	175	192	98	48
Total goods and services	465	504	564	636	729	832	947	1070	1162	1277	1399	728	357
Dynamics (previous year =100)	—	108.4	111.9	112.8	114.6	114.1	113.8	113.0	108.6	110.0	109.5	108.0	111.2
Total net incomes	489	543	626	717	824	933	1040	1169	1271	1397	1535	797	447
Dynamics (previous year =100)	—	111.0	115.3	114.5	114.9	113.2	111.5	112.4	108.7	109.9	109.8	109.6	119.4
Monetary balances of the population													
Total (zl. bn)	171	198	239	300	370	435	486	538	600	675	766	766	843
of which—savings	117	137	170	213	264	307	339	376	415	464	500	500	542
—cash	54	61	69	87	106	128	147	162	185	211	266	266	301

Source: Raport (1981) p. 127.

Raport 1981), echoing the approach developed by Polish economists (for instance, Herer and Sadowsky 1981) who carefully distinguish inflationary gap *(luka),* i.e. the share of current personal incomes not covered by consumption goods and services at official prices, and inflationary overhang *(nawis,* or current demand out of liquid assets built out of past inflationary gaps and carried over from previous periods). The sum of the two adds up to more conventional 'excess demand'; the distinction between the two components is notional and arbitrary, but it is useful in discussing time processes and *trends.* Without reference to additional evidence, however, or without the support of models and estimates of demand for financial assets, both notions of gap and overhang are also arbitrary and so are their measurements. The same applies to calculations embodying an allowance for an arbitrarily estimated growth of desired financial holdings with respect to a period of market balance and tranquillity (Gomulka 1979).

The first attempt at building an index of repressed inflation is by Holzman (1960) who interprets the ratio between free market price (in the kolkhozian market) and state price for foodstuffs, weighted by the share of output sold in the free market, as an indicator of overall excess demand (which he identifies with repressed inflation); Holzman's series have been updated by Garvy (1977) and Dirksen (1981; see Table 5.10, where the value of the index in 1955 is made equal to 100; see also Portes 1977, 1981b). The index suggests a fall in excess demand (i.e. negative repressed inflation) between 1955 and the early 1970s in the USSR,

Table 5.10 Holzman's indicator of repressed inflation for the USSR, 1955–79 (1955 = 100)

Year	Indicator	Year	Indicator	Year	Indicator
1956	59	1964	39	1972	23
1957	40	1965	28	1973	25
1958	41	1966	24	1974	23
1959	32	1967	24	1975	27
1960	30	1968	22	1976	30
1961	38	1969	25	1977	30
1962	37	1970	22	1978	34
1963	36	1971	22	1979	34

Sources: Holzman (1960), Garvy (1977), Dirksen (1981).

followed by a modest positive rise in the rest of the decade. The notion that, if there is excess demand at state prices and some of it is repressed, the amount of repressed excess demand will be directly related to the impact of non-repressed excess demand on free prices is ingenious and appealing. If this is the underlying rationale of Holzman's original approach, an even better indicator would be provided by the ratio between 'true' price indices such as those discussed in the previous section, and official price indices in state shops (i.e. excluding the kolkhozian market from the official price index) because in that way the varying intensity of excess demand in non-food as well as food intended expenditure is taken into consideration. If the reasoning is accepted, the constancy of the index from one year to the next indicates the constancy of *relative* excess demand with respect to current sales, i.e. the growth of *absolute* excess demand by the same rate as sales—which is convenient for preserving the possibility of multiplying indices of true open inflation and repressed inflation to obtain total inflation.[8] Zero repressed inflation, however, simply means the preservation of the relative excess demand existing in the base period, and if this is large it is hardly a consolation for the planners facing the task of markets stabilisation. Holzman's index, unfortunately, does not indicate the *size* of that excess demand, only its time trend.

Kornai claims that in a situation of *chronic* shortages '… aggregate excess demand is not an operational category …' (1980, p. 477) and proposes a composite 'shortage index' (Kornai 1982). Partial indicators of shortages are identified: the orders refused by the building industry, unfilled orders for cars, building materials shortage, deviation of household savings from the trend; a macroindex of shortage is then constructed on the basis of time series for the partial indicators (see Table 5.11 for Hungary 1965–78). Like Holzman's index, Kornai's macroindex indicates the dynamics of the phenomenon under investigation, not its absolute size at any time; also, it combines consumption and production goods; these appear as advantages from Kornai's theoretical stance, since

[8] As in the analogous relationship between the recorded and unrecorded components of open inflation, see above. Dirksen contends that the validity of Holzman's indicator rests on state prices having a zero rate of open inflation (1981, p. 307, footnote 1); this is unjustified and would violate the multiplicative relation required by consistent accounting.

Table 5.11 Kornai's macro-index of shortage (based on Hungarian data, 1965–78)

Year	Index based on 14-year time-series	Index based on 9-year time-series
1965	0.412	—
1966	0.430	—
1967	0.429	—
1968	0.544	
1969	0.600	—
1970	0.548	0.548
1971	0.498	0.486
1972	0.400	0.404
1973	0.401	0.401
1974	0.456	0.447
1975	0.508	0.496
1976	0.505	0.503
1977	0.553	0.531
1978	0.496	0.479

From: Kornai (1982).

they avoid the notion of aggregate excess demand and the problem of netting out positive and negative excess demands in different sectors, and allow for the generalised spreading of shortage, when it occurs, across sectors; they seem, however, drawbacks with respect to the observer" and the planner's task of assessing both performance and the difficulty of tasks ahead. Moreover, the particular version of macroindex constructed by Kornai—which shows shortage to be a cyclical phenomenon rather than a trend—may reflect the choice of savings deviation from trend as a partial indicator of shortage, which already *presumes* consumer shortage to be cyclical without a long-run trend.

Attempts at measuring excess demand and the implicit repressed inflation, as well as testing the hypothesis of its existence at the same time, have been developed in econometric studies, and recently have grown considerably with the application of disequilibrium econometrics. Soviet household savings were found to conform to patterns well explored for market economies in early attempts by Volkonskii et al. (1976) using a Houthakker-Taylor savings function and by Pickersgill (1976) using the permanent income hypothesis (see also Pickersgill 1977, 1980a, 1980b). Portes and Winter (1978) provided an estimate of household demand for money and saving functions well tried for market economies (log-linear

function for desired balances with a stock-adjustment process; and savings functions based on the absolute income hypothesis and on the Houthakker-Taylor function); they reported successful estimation and found '… no evidence of abnormal behaviour that might suggest sustained disequilibrium …' (p. 17). Green (1978) replicating a slightly modified version of the same analysis for the GDR reached similar conclusions but found that the attainment of equilibrium appeared to depend upon the availability of food sold at official retail prices, since households accumulate fewer financial assets when food supplies are tight in the GDR (which therefore indicates greater consumption disequilibrium in spite of lower savings when that occurs).

In a subsequent paper Portes and Winter (1980) apply techniques of disequilibrium econometrics to the same problems, applying a discrete-switching disequilibrium model with a household demand equation for consumption goods, a planners' supply equation and 'min' condition stating that the actual quantity transacted is the lesser of the quantity demanded and supplied; they reject 'the hypothesis of sustained repressed inflation in the market for consumption goods and services since the mid-1950s in our four CPEs' (1980, pp. 155–156); indeed, excess supply is regarded as the most probable dominant regime in three out of the four countries (1980, p. 149). A further development of this model was based on the approach of Charemza and Quandt (1982) who postulated the adjustment of planned quantities instead of actual prices; Portes et al. (1983) used new data about plan fulfilment to model an elaborate (plausible though arbitrary) objective function for socialist planners which include plan response to plan fulfilment, and applied the model to Poland in 1955–80. Alternative models are generated, according to slightly different ways of defining and computing excess demand terms; average simulated excess demands for Poland in 1957–80 using the four best performing variants of the model are reproduced in Table 5.12. The startling result is the persistence of low estimates of excess demand (and of the average rates of repressed inflation which are implicit in them over the period), even for the country and the years where indirect evidence suggests that excess demand and repressed inflation were at their peak. Thus in 1980 Poland simulated excess demand for the best four models

Table 5.12 Average simulated excess demands (%), Poland 1957–80

	Model I	Model IIa	Model III	Model Vb
				•
1957	3.0	3.7	0.7	-3.6
1958	-4.1	-1.8	-2.5	-3.9
1959	0.8	0.7	-0.8	1.0
1960	-6.8	-5.5	-5.2	-4.4
1961	5.1	2.2	1.7	1.4
1962	-4.1	-3.1	-2.8	-2.0
1963	-0.3	-1.5	-0.8	-0.6
1964	-4.2	-2.5	-3.1	-1.6
1965	-1.1	-0.8	-1.0	1.8
1966	-3.5	-2.0	-3.0	1.0
1967	-3.0	-1.1	-2.1	-0.7
1968	0.4	1.8	0.5	2.5
1969	-0.9	1.6	-0.8	0.2
1970	-0.2	0.9	0.1	-1.0
1971	4.5	3.8	2.2	2.5
1972	0.7	5.0	0.9	7.0
1973	-3.0	1.8	-2.3	2.7
1974	-0.9	3.6	-0.3	1.2
1975	1.0	2.2	-0.4	2.8
1976	-1.0	-0.8	-2.4	-2.9
1977	-1.5	-1.3	-2.6	-0.1
1978	-10.7	-7.1	-7.2	-8.7
1979	1.5	0.4	0.4	1.2
1980	1.2	-0.1	0.5	1.2

From: Portes et al. (1983).

ranges from a maximum of 1.2% in two of the models to −0.1% (i.e. excess *supply,* though at a negligible rate).

Charemza and Gronicki (1982, 1984) and Charemza (1984) apply the 'rational' expectations hypothesis (pioneered by Muth 1961) to a disequilibrium model *à la* Barro and Grossman (1976), embodying households demand for consumption and money and supply of labour; wages adjust to workers' expected excess demand and primary plans drawn on enterprises' expectations of labour shortages and aggregated and adjusted to labour supply by central planners. Estimated excess demands for consumption and labour, absolute and relative to the quantities transacted, are included in Table 5.13; rising trends can be observed for all variables, with a U-shaped pattern for percentage excess demands (with turning

Table 5.13 Charemza and Gronicki's estimates for absolute and percentage excess demand for consumption and labour

	Absolute estimates		in % of quantity transacted	
Year	Consumption in bn zl.	Labour in ml. of employees	Consumption	Labour
1960	15.1	0.373	6.20	3.01
1961	16.6	0.351	6.29	2.79
1962	16.1	0.532	5.74	4.15
1963	13.2	0.234	4.43	1.79
1964	15.2	0.309	4.82	2.35
1965	17.2	0.140	5.04	1.03
1966	20.3	0.089	5.53	0.64
1967	20.2	0.365	5.07	2.54
1968	19.6	0.265	4.51	1.80
1969	16.2	0.428	3.54	2.84
1970	13.9	0.269	2.84	1.77
1971	30.8	0.039	5.81	0.25
1972	48.4	0.261	8.08	1.65
1973	62.8	0.971	9.30	6.01
1974	79.7	0.919	10.34	5.58
1975	81.4	2.273	9.27	7.68
1976	86.0	1.313	8.48	7.93
1977	87.6	0.826	7.72	5.00
1978	80.4	1.169	6.51	7.03
1979	92.1	1.985	6.81	12.00
1980	117.7	2.133	7.74	12.93

From: Charemza and Gronicki (1984), Table 2, p. 82.

points in 1970 for consumption and 1971 for labour).[9] Charemza and Gronicki also define 'balancing price' p_B as the price level which would have equated the value of actual purchases to the value of intended purchases at actual prices. The difference between the p_B index and the actual price index p_{60} obtained by putting 1960 = 100 is regarded as a measure

[9] From the data reproduced in Table 5.13 Charemza and Gronicki calculate an index of 'degree of repressed inflation' (RID) defined as the difference between the excess demand index evaluated in constant 1960 prices and the price index for particular years (Charemza and Gronicki 1984, p. 88). The RID index has the drawbacks of comparing indices (of excess demand and of prices) not weighted by their respective volumes of transactions, of not possessing the multiplicative properties of price indices (differences between indices being very rough approximations to the trend of their ratios for the large relative changes recorded) and of measuring *changes* in excess demand with respect to the base year and not its degree. The Charemza and Gronicki index for the 'degree of repressed inflation' (1984, Table 4) is therefore meaningless.

Table 5.14 Charemza and Gronicki's balancing and observed price indices for consumption goods, Poland 1960–80

	PB	*P60*	
Year	1960 = 100-0		PB-P60
1960	106.2	100.0	6.2
1961	107.6	100.9	6.7
1962	109.4	103.5	5.9
1963	108.9	104.3	4.6
1964	111.1	106.0	5.1
1965	113.0	107.6	5.4
1966	114.6	108.6	6.0
1967	116.0	110.4	5.6
1968	117.4	112.3	5.1
1969	118.0	114.0	4.0
1970	118.8	115.5	3.3
1971	123.4	116.6	6.8
1972	126.2	116.8	9.4
1973	131.7	120.5	11.2
1974	141.6	128.3	13.3
1975	144.2	132.0	12.4
1976	151.3	139.5	11.8
1977	158.2	146.9	11.3
1978	169.0	158.7	10.3
1979	180.8	169.3	11.5
1980	200.6	186.2	14.4

From: Charemza and Gronicki (1984), Table 5, p. 91.

of excess demand (Table 5.14), better than that indicated in Table 5.13 in that it conveniently peaks in 1980 as direct observation would have suggested.[10]

There are a number of criticisms and reservations which could be raised against the econometric estimates of excess demand and its rates of change reported here, to try and reconcile the generally low estimates with the more widespread impressions of large scale and growing imbalance. Thus, for instance, the use by Portes et al. (1983) of deviations from

[10] As in the RID index, mentioned in the previous footnote, differences between indices only approximate trends in the ratios between them; even accepting the proposed approach the appropriate measure of the proportional excess of P_B over P_{60} is $(P_B/P_{60}–1)$ and not $(P_B - P_{60})$, which here systematically over-estimates excess demand. When properly calculated excess demand still peaks in 1974 at 10.4%, later falls to 6.5% in 1978 and rises again to 7.7% in 1980. Cumulative rates of repressed inflation can be calculated as the growth rates of these excess demand indices.

trend in households' financial assets could be thought to rule out from the outset the possibility of a trend of increasing excess demand and explain the closeness of their results to Kornai (1982) who does the same. Labour supply negatively responding to market imbalance (Charemza and Gronicki 1984) in spite of constraints in workers' choice of working time may have over-estimated excess demand in the labour market and under-estimated it for consumption goods.

Rational expectations—which many would regard as inappropriate to model market economies, let alone centrally planned ones—leaving hardly any room for the unexpected might have been crucial to the results reported by Charemza and Gronicki (who specifically use them) and Portes et al. (who approximate them in two of their model variants).

Even without this kind of criticism, however, it is perfectly possible to reconcile estimates of low excess demand and repressed inflation with the widespread concern for market imbalance expressed by many observers and officials alike: consumers may be quantity rationed in their purchases from the state sector at state prices, but are not rationed in their purchases in the non-state sector where non-state goods may be supplied and state goods may be retraded at higher prices. Excess demand at state prices is channelled into the non-state sector driving prices there up to the point where liquid balances for transactions plus those speculatively held are voluntarily demanded by the population. This point is made strongly and persuasively by Gregory Grossman: '… it would seem that the very presence of a large secondary economy, and in particular of a black market, in a sense does away with repressed inflation, despite fairly rigid control of official retail prices. In the second economy, prices tend to be high enough to eliminate any overall 'monetary overhang' (that is, excess of purchasing power over the total supply of goods and services at effective prices) and to forestall a repressed inflationary situation in relation to the controlled and non-controlled sectors taken together' (1977, in Tanzi 1982, p. 259). Hartwig (1983) also stresses that involuntary real money balances are removed already in the short run for their overwhelming part, 'partly by increasing prices in the second economy, partly by a renewed rise in the demand for liquid assets'; the rise in transaction costs (queueing, bribes, information costs, etc.), growing informal transactions

and 'the desire to possess liquid assets in order to take advantage of unexpected opportunities cause economic agents to convert involuntary into voluntary money balances' (Hartwig 1983, p. 104). Brus and Laski (1983), though concurring with this general view, regard the speculative element in money holdings as dependent on the maintenance of lower state prices and therefore properly classified under excess demand; this is an important condition for the stability of the free market which, however, does not make speculative cash holdings any less voluntarily held. By and large, except for temporary excess balances due to time lags in adjusting to monetary shocks, 'enormous amounts of involuntary liquid assets in the private sector seem very implausible'[11] (Hartwig 1983, p. 105).

If there is no hidden or open hyperinflation, and no differential transaction costs in the free and the controlled market, a properly constructed and specified econometric model *should* give zero excess demand all the time and therefore zero repressed inflation. Since we know from direct evidence that there was no hidden or open *hyper*-inflation in the period and countries considered, estimates of positive excess demand must be due to factors such as the use of price indices different from the 'true' indices, consumer restraint from transacting fully on free markets (out of Party loyalty, fear of penalties or lack of storage space) and more generally differential transaction costs. However information costs and any other inconvenience in the free market cannot be much greater than the cost of searching and queueing in the controlled market; Party-loyal citizens are likely to have privileged access to goods and large storage space, while less enlightened citizens are likely to be less deterred by penalties and to be willing to go to great lengths to realise their purchasing power (within the

[11] With the existence of an extended second economy, postulated generally for the CPEs of Eastern Europe, growing cash and savings bank deposits do not indicate forced saving, but only show that private households are unwilling to pay the higher prices on the different types of markets outside the public sector, to pay bribes, or to incur other forms of transaction costs. They prefer liquid assets. Likewise queueing does not indicate that people cannot buy what they wish and therefore cannot spend their money, as is often argued. Queueing only shows that private households evaluate the disutilities of queueing less than the disutilities arising from higher prices in the second economy or from paying bribes. Every economic unit can choose to spend its money outside the public sector and obtain goods more rapidly, but at higher costs, or to wait for a favourable occasion. The respective behaviour is determined by various expectations. However, the decision to accumulate money and near-money under these circumstances is voluntary (Hartwig 1983, p. 104).

limits set by expected future prices, probability of supply and time preference, as indicated in the previous section): excess demand *in the economy as a whole* is likely to be small.

This is the good news. The bad news is that *most and possibly all* of the liquid assets in the hands of the population are pressing at any time onto the lower priced and quantity constrained state sector.[12] Intended purchases at *state prices* will be equal to the quantity which would have been demanded at those prices if no market imbalance has been experienced recently, *plus* speculative demand[13] expressed on the reasonable expectation that recent market imbalance at those state prices might reoccur in the near future (within the constraints set by storage opportunities and by expectations about likely appreciation at future free prices relative to interest foregone plus physical depreciation and other storage costs). Excess demand *in the state sector* is equal to these intended purchases minus actual supplies, and *this* can be large and increasing fast even if excess demand in *the economy as a whole* is constantly held at zero by inflation in the non-state sector whether or not officially recognised. In the presence of this phenomenon, which has very considerable economic costs to the economy (not to count political costs to the regime), claims about the absence or low incidence of excess demand sound somewhat frivolous and the rough and ready estimates of experts in the field (whose main fault is that of not distinguishing between the state sector and the whole economy) appear more credible, as an indication of the existence and size of market imbalance and the gravity of the problem confronting central planners, than the spurious precision of advanced econometrics, which almost tautologically defines imbalance out of existence.

[12] '… repressed inflation (excess demand in our terminology) *in the state goods market* persists even when the collective farm market clears' (Gardner and Strauss 1981, pp. 392–393). These authors, however, infer from this the existence of excess (involuntary) money balances in the economy as a whole, which as we have seen is not necessarily the case. See also Wimberley (1981) on the 'involuntary' nature of most transactions in the second economy.

[13] In the summer of 1985 water authorities facing drought in Florence did not ration water in spite of water reserves gradually falling to zero because they expected the introduction of rationing would raise current demand over the normal level through consumers building up their own reserves, filling up their bath tubs and therefore demanding more water than usual at the same price. In the same way, once supply of any good falls substantially below equilibrium at the going price, consumers will demand at that price more than the normal equilibrium level, lowering their liquid asset holdings below the normal equilibrium level.

5.7 An Alternative Model

Let us consider a Soviet-type economy in a state of persistent equilibrium: consumption markets clear and have cleared without inflation for the last h years of relevant consumer memory (h being of the order of magnitude of, say five years), at a uniform price level in state and non-state sectors. Money (i.e. liquid financial assets) is demanded both to finance current transactions and as a component of consumers' portfolio, i.e.

$$M_{\mathrm{d}} = M_{\mathrm{T}} + M_{\mathrm{K}} = M\left(Y,P,K\right) \tag{5.1}$$

$$M_{\mathrm{S}} = 0 \tag{5.2}$$

where:

M_{d} = consumers' demand for money,
M_{T} = consumers' demand for transaction purposes,
M_{K} = consumers' demand for money as an asset,
Y = money incomes,
P = the price level,
K = the money value of consumers' total assets,
M_{S} = consumers' speculative demand for money.

Differences between money incomes and current expenditure add to (or diminish) the stock of money held by consumers adjusting it to the desired level over time. In the position considered here equilibrium has prevailed for h periods during which

$$P = P^{*} \tag{5.3}$$

$$M = M^{*}\left(Y,P^{*},K\right) \tag{5.4}$$

where M is the money in existence and the asterisk indicates equilibrium magnitudes in conditions of persistent equilibrium. These are the conditions which prevailed, or were approximated, in the Soviet Union and Eastern Europe roughly in the second half of the 1950s, after the experience of price stability and mild deflation.

Next we can imagine the appearance at time t of *creeping repressed inflation,* i.e. excess demand at prices P^*_{t-1} prevailing previously. The price level is held at P^*_{t-1} but $P^*_t > P^*_{t-1}$. An excess demand appears and may even grow over time, but the following conditions are fulfilled: (i) excess demand appears and remains at below a critical fraction of current consumption supplies (or, which is the same, the value of excess demand is below a critical fraction of M_T); thus excess demand grows no faster than consumption; (ii) no open inflation appears (whether officially recorded or unrecorded); (iii) shortages are sporadic, not persistently concentrated always in the same sectors; they are accompanied by excess supply in other sectors and shortages of individual commodities can fall as well as increase. Welfare is reduced because of the absolute shortfall and because of forced substitution, but the persistent expectation of availability of goods in the future at constant prices and at a small but positive real interest rate leads consumers to hold speculatively any surplus money over and above desired transaction and asset demand. Within the bounds of the three conditions listed here, there is infinitely elastic demand for money on the part of consumers for speculative purposes, a kind of liquidity 'trap' which however in the circumstances of the Soviet-type is not at all a 'trap' (catching the economy on its way to full employment) but rather a shelter protecting it from open inflation.

$$M_S = M - \left(M_T + M_K\right) \text{subject to conditions} \left(\text{i}\right) - \left(\text{iii}\right). \qquad (5.5)$$

These conditions prevailed, or were approximated, in Eastern Europe in the 1960s, and well into the 1970s for the Soviet Union and especially the GDR (thanks to its special relation with the FRG which transforms structural imbalances into a less intense overall imbalance, preventing spill over effects of concentrated shortages).

The acceleration of the relative weight of shortages, their concentration, or generalised upward trend, lead to *open inflation,* whether hidden or officially recorded. When inflation first appears, or when it accelerates, if the price increase is initially calibrated to respond to the scale of the shortfall of consumption with respect to current income there will remain residual inflationary pressure because at least some of the former M_S will

be switched towards current purchases. This is why higher prices, when decreed after a spell of creeping repressed inflation, are either pitched at too low a level with respect to equilibrium in current markets or, if prices are pitched at the equilibrium level, they will have to be higher than the long-term equilibrium level consistent with the given flow of real consumption and of monetary income, in which case they are perceived as an unwarrantedly drastic cut in the standard of living and strongly resisted.

Open inflation may and often does lead to the establishment or rapid growth of a two-tier market: the state sector where price P_1 prevails, and price P_2 in the second economy where a fraction of the goods originally supplied by the state sector are retraded and additional goods are supplied. Thus (for each commodity, though here we assume for simplicity that there is a homogeneous single consumption good) we have:

$$P = P_1 C_{S1} + P_2 \left(C_{S2} + C_K \right) \tag{5.6}$$

where C_K is the consumption supplied by the non-state (kolkhozian and other) sector, C_{S1} and C_{S2} are the parts of state-supplied consumption C_S respectively consumed directly and retraded in the second economy. Retrading and non-state output raise income by the same amount of the value added by these activities, i.e.

$$Y = Y_S + \left(P_2 + P_1 \right) C_{S2} + P_2 C_K . \tag{5.7}$$

Therefore the second economy does not eliminate excess demand by its *direct contribution* (if any) to the reduction of supply shortfalls. It may contribute to the absorption of excess demand through its higher transaction requirements of cash per value of turnover; this is likely to be the case but is not necessary to the equilibrating role of the second economy. Ultimately, excess demand is eliminated by P_2 rising high enough to raise the demand for money for transaction purposes and (given time preferences, expected free prices, and expected state prices times the likelihood of their availability at those prices) speculative demand for money. An equilibrium is reached at prices P_2^{**} such that:

$$M = M_T + M_S = \tilde{M}\left(Y, P_2^{**}, \bar{P}_1\right) = M^{**}. \tag{5.8}$$

The process through which equilibrium is reached is similar in the capitalist and the Soviet-type economy. In a capitalist economy with a full-fledged monetary and financial system there cannot be 'too much money' in the sense of excess liquid assets in the hands of the public with respect to their desired level. Any excess bonds can be converted into cash; any excess cash can be spent on goods driving up their price (which reduces the excess also indirectly by raising cash requirements for transactions); any remaining excess cash can be used to reduce outstanding debt or raise net credits *vis-à-vis* the banking system, any excess cash within the banking system can be deposited with the Central Bank; the interest rate and its structure will be influenced by all these moves, but in this way 'excess' liquid assets ultimately will be eliminated and can only appear as a temporary phenomenon due to the length and structure of lags involved in the adjustment process. In the Soviet-type economy there are constraints affecting this process: price controls lead to price rises only outside the formal sector, the interest is kept at low levels to prevent the rise of rentiers and the existence of two monetary circuits slows down both the transmission of shocks and the adjustment process; the two-tier formal and informal price system causes queues and other transaction costs but otherwise the adjustment process is the same.

It follows from the temporary and unlikely character of *overall* excess demand, and from the existence of a second economy where state goods are retraded and possibly additional goods supplied, that the consumer-rationing model *à la* Barro and H. Grossman is not at all suitable for Soviet-type economies outside the extreme case of distribution exclusively through actual ration coupons without retrading, i.e. war communism. While Barro and H. Grossman specifically stress their assumption that there is no secondary trading in a two-tier market, and do not claim their results to apply outside their model's assumptions, Howard's use of that model in spite of his recognition of 'the uncontrolled or free consumer goods market' (which, moreover, is restricted to the kolkhozian market) is illegitimate. The same consideration applies to Portes' theoretical (1979, which considers not only current consumption but also

expectation of future consumption as quantity-rationed) and empirical work (Portes et al. 1983), Charemza and Gronicki (1982, 1984) and others. Consumers are indeed quantity-rationed in the state sector but they are not subject individually to overall quantity constraints since they can always spend their money in the secondary market. It follows that the 'supply-multiplier', i.e. the rounds of reduction in labour supply (and therefore consumer goods supply) which are alleged as a consequence of quantity constraints, do not necessarily occur and can only be expected to be present in the same circumstances in which labour supply would respond negatively to open inflation. Moreover, demand functions in the presence of *persistent* and large quantity-rationing must differ from the case of sporadic, occasional and small rationing.

Under-recording of the actual price level faced by consumers (whose actual average income is inclusive of second economy value added) is due to four possible causes:

1. P_1 being higher than its recorded level;
2. P_2 being higher than its recorded level;
3. the relative weights of C_K with respect to C_S being under-recorded;
4. the neglect of C_{S2} being ultimately purchased by consumers at P_2 instead of P_1 (though, for the purpose of calculating consumers' total purchasing power income is also under-recorded unless Eq. (5.7) is used to restate it).

In the extensive literature on 'hidden' inflation considered above (Sect. 5.5) the first three sources of under-recording are discussed and attempts are made for their estimate; while demand for money and the income to which demand for money is related should depend on P as defined in Eq. (6) and not on $P_1 C_S + P_2 C_K$ as in standard work (Howard, Alton, Askanas and Laski etc.). The same, more comprehensively defined, price level should be used in econometric work *à la* Portes. Once hidden inflation is properly accounted for, any residual excess demand which might be detected must be due to adjustment not being instantaneous, because of lags in stock adjustment behaviour or to storage capacity constraints (restricting effective demand) and similar factors unlikely to be large.

Hence it is not surprising to find econometric studies estimating it to be small, as in the literature surveyed above (in the previous section). Money which, in view of the opportunities afforded by the second economy, is voluntarily held by consumers is, however, involuntarily held in so far as consumers would only too willingly unload on to the state sector at state prices their entire cash holdings except for $\tilde{M}(Y_S + P_2 C_2, P_1)$. Hence the alarmed assessment and the admittedly rough estimates of observers who claim there is large imbalance is also correct, and indeed has greater merit if the question is 'do Soviet-type economies face a large-scale stabilisation task?' instead of 'are there forced savings?' or 'are official authorities lying?'. Cumulative hidden inflation can be dealt with at a stroke simply by updating official price lists and/or recalculating official price indices with the appropriate weights; but the quantification of the stabilisation task, the policy measures and the alternative *paths* towards the restoration of market clearing at a uniform price and of price stability is much harder both to theorise and to implement.

There are very few *a priori* propositions which we can make about the size of the task and the price trends which would restore equilibrium:

1. The price level which would restore equilibrium is not a single valued magnitude but an inverse function of the period over which equilibrium is to be restored;
2. The range of prices over which this re-equilibrating price would have to be pitched, as a function of the period of transition to equilibrium, presumably has a maximum level of P_2 because, once consumers have to pay prices higher than P_1 in the state sector, their real income is reduced and they could not afford to pay P_2 for the rest of their purchases. However, an awkward complication is created by the possibility of consumers, formerly willing to hold cash balances in the expectation of future purchases at given expected state and free prices, now revise upwards their price expectations and unload at least some of their balances into the present market, possibly driving the range of re-equilibrating prices above the current P_2;
3. The re-equilibrating price will be greater than P^*, i.e. the price which would preserve equilibrium if it had been in force for the last h years;

4. The re-equilibrating price being a function of the period of transition to equilibrium, it cannot be identified with current P, which is *a* weighted average of P_1 and P_2, but not necessarily the average corresponding to the selected period of transition.

These propositions may not provide much assistance for actually assessing the gravity of the problem faced by planners, but at the same time are strong reasons for rejecting measurements of hidden and repressed inflation put forward in the literature reviewed above. Estimates of hidden inflation can be rejected because they neglect the weight of secondary transactions involving state goods, and because the actual price index relative to the official one does not indicate the 'true' extent of current excess demand, or the 'true' price level which if prevailing in the state sector would restore equilibrium. Diverging estimates of repressed inflation—whether crude or based on advanced econometric methods—can be reconciled in so far as crude pessimistic assessments can be referred to policy propositions and optimistic econometric assessments can be referred to a much stricter (and policy-irrelevant) definition of the problem; both approaches, however, neglect the problem's time dimension (being instantaneous measurements) and complexity (i.e. the difference between the equilibrium level which would *preserve* equilibrium and the time path of prices which would *restore* it). Both features of the problem have strong policy implications.

5.8 Implications for Market-Clearing and Stabilisation

In market and Soviet-type economies the availability of monetary instruments is radically different. In the market economy the measures available include: direct controls over bank lending, raising of reserve requirements, special (compulsory and unprofitable) deposits to be held with the Central Bank by commercial banks, funding of government debt, open market operations, raising of the bank rate, etc. In the Soviet-type economy some of these monetary instruments can be used *if the*

economy has got out of planners' control to reinstate that control and restore planning: controls over bank lending, interest rate policy for firms. Once the economy is back in the grip of planners, however, none of these instruments can be used. In the household sector the interest rate cannot be raised and net issues of government bonds at low interest rates do not find buyers unless an element of formal or informal compulsion is introduced in which case they become just a form of taxation. In the firms sector, if financial flows have already been dovetailed to plans for output, any sales of bonds, additional interest rate payment, direct control of credit, would have to be matched and therefore neutralised by a government subsidy to firms to enable them to fulfil plans. Thus money can be an instrument of monitoring plan execution (the 'control by the rouble' of Soviet textbooks), not a policy instrument. The same applies to taxation in the firms sector. The burden of market adjustment will fall on firms under the guise of changes in output plans, in which case financial adjustments can be made.

In the Soviet-type economy, therefore, once money incomes in the state sector have been fixed, market stabilisation, understood as the restoration of a single market-clearing price will take one or a combination of three policies which do not involve monetary means: (i) price rises; (ii) taxation of wealth (not income tax because, if after-tax income could have been lowered, money incomes would have been fixed at a lower level); (iii) supply rises. Both in academic and official circles the discussion of effective stabilisation policies in a search for *the* equilibrium price *level,* or the once-and-for-all capital levy (mostly in the form of a currency conversion at diversified rates, see Sect. 5.3 above), or the level of the once-and-for-all or recurring increase in supplies which must take place to stabilise the market. The problem, however, is more complex and has a time dimension.

It is more complex because the price level at which markets would clear if they had been clearing for the last h years of consumers' relevant memory will only preserve market equilibrium, if everything else remains unchanged, *after* equilibrium has been reached and maintained for h years. That price level, however, will be too low to *restore* equilibrium even given all the time in the world. The time dimension is involved not

only under the guise of h (a parameter of the formation of consumers' expectations, which is influenced not by economic but by political factors, i.e. the credibility of governments and of their commitment to market clearing) but as the length of the period over which first market clearing is to be achieved, and then a transition to equilibrium ratios between assets, income and sales is to be implemented. In fact the price level necessary to absorb all excess demand will be inversely related to the length of time over which such absorption takes place. For instance, if the liquid assets which the population would like to convert into goods in the state sector are equal to six months of state sales at current prices, it will take a price level twice the current level to reach equilibrium in six months, six times the current level to reach it in one month, fifty per cent higher to reach it in one year and only 10% higher to reach it in three years, with disequilibrium persisting at gradually falling levels during the period of transition. Once market clearing at a uniform price is reached, consumers having exhausted their excess liquid reserves will not be able to maintain their real purchases at the going price; the price level will have to *fall.* After h periods consumers will be persuaded that market clearing will persist and they will begin to replenish their liquid assets and reduce their inventories of goods towards their long-run equilibrium levels. For markets to clear at a constant rate of supplies and constant money incomes prices will have to fall again for a period of time V'' equal to the ratio of the difference between equilibrium and current money holdings (M^{*}- M_{V+h}) to the decrease in the market value of the constant supply of goods (per unit of time) caused by the price fall. After a time V'' has lapsed, consumers will have reached their long-term equilibrium holdings of liquid assets M^{*} but further cyclical perturbations will follow unless the authorities promptly decree a price increase that brings prices to their equilibrium P^{*}. At that point, and not before, market clearing is associated with price stability. The process is illustrated in Fig. 5.1.

Planners do not know beforehand the value of h, M^{**} or M^{*}; they need to know these values in order to complete the process neither later nor sooner than they intend, but they do not have to know them to execute a stabilisation programme. As long as the planners set a price level at which consumers cannot afford to buy up current supplies out of income

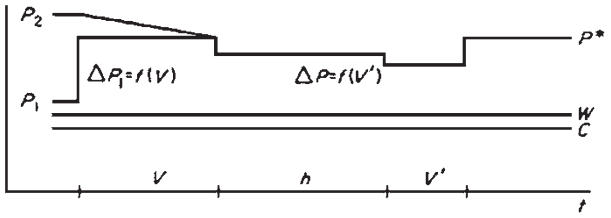

Fig. 5.1 Stabilisation through price policy

alone, sooner or later they will complete the first stage of market stabilisation after a time V corresponding to the price increase and whatever $M - M^{**}$ is. If, as is likely, the strictest constraint on the stabilisation programme is the rate at which the excess liquid assets can be depleted, i.e. the highest state price level the population is prepared to put up with, planners' ignorance of M^{**} does not matter at all. They will know that the length of time V has been completed when they experience a generalised rise in inventory levels. At that point they can let prices find their own level; they will know the second stage of stabilisation is completed and the hth period has arrived after V when at those prices they will see a further generalised rise in inventories. Again they can let prices find their own level but after a while they will experience lower than normal inventories. The authorities will know from this sign that they have just overshot the end of the further V' periods. They will have to raise prices but if they let the market find its level a dampened fluctuation around the long-run equilibrium level of liquid assets and prices will follow; this might be preferable to attempts at guessing what the equilibrium level is, which might cause disturbances worse than dampened fluctuations. At the end of the V periods after an initial mild price fall, which is desirable in itself to penalise speculative hoarding of goods and stabilise expectations, it may be preferable and more expedient to raise incomes instead of lowering prices further, in order to allow consumers to replenish their cash holdings. The trouble is that the lower prices cannot be maintained after the end of period $V + h + V'$ when consumers have replenished their cash holdings; for the higher income level to be maintained, prices would have to undertake a final hike, to the P^* equilibrium level. This policy variant mixing prices and incomes measures is illustrated in Fig. 5.2.

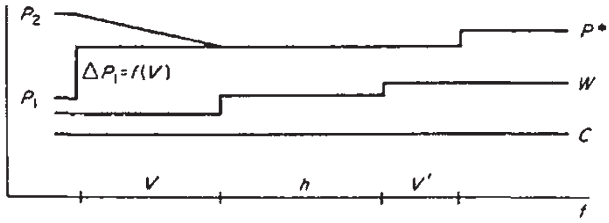

Fig. 5.2 Stabilisation through prices and incomes policy

Reliance on a wealth tax or on increased supplies to restore equilibrium can now be easily illustrated by highlighting the differences with respect to the previous case during the three stages of stabilisation, of lengths V, h and V'. A conversion of the currency confiscating the excess part of real value of liquid assets would shorten period V to zero. Beside the advantage of speeding up the stabilisation process, the conversion has other enormous advantages: it can confiscate purchasing power at progressive rates; it confiscates totally those liquid assets which originated from illegal profits to the extent that they cannot be laundered; even if a constant (i.e. non-progressive) part of liquid assets are confiscated, the measure is not *regressive,* as a generalised price increase which forces greater consumption cuts on people who do not hold liquid assets would be. The only disadvantage of a confiscatory currency conversion is that it takes longer to print the new currency and execute the manoeuvre than to decree higher prices; there is a greater chance of a leak, in which case all liquid assets would become instantaneously 'surplus' in the whole economy (including the non-state sector): serious market disruptions and social disturbances might be set in motion unless the manoeuvre is swiftly and efficiently executed. Also, there may be—without real justification—greater *odium* for the government in a single large-scale confiscatory move than in an equally confiscatory price rise diluted over a period of time V. If the conversion is pitched at the 'right' rate, equivalent to M^{**}/M units of the new currency for one old, market-clearing will be instantaneously reached and from that point onwards the story will continue as in the previous case: prices will fall for h periods, fall further for another V' periods, after which equilibrium can be attained (see Fig. 5.3), or approached through dampened fluctuations (or incomes may

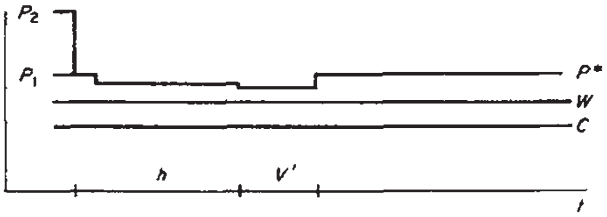

Fig. 5.3 Stabilisation through currency reform

undertake compensatory inverse changes, as in the previous case). The period of mild open deflation experienced by the Soviet Union and other East European countries after the currency conversions at the turn of the 1950s (see above, Sect. 5.3 and Table 5.2) can well be attributed to the necessary overshooting implicit in achieving market-clearing, whether instantly or through a period of confiscatory inflation. The experience of those conversions suggest that the conversion had been pitched at rates which were either correct or slightly lower (i.e. more confiscatory) than necessary. If the conversion is not pitched at the appropriate rate, because planners do not know the value of M^*, other instruments (prices, incomes, income taxes or supply changes) will have to be used, rather than making further clumsy attempts at currency reform.

If stabilisation were to be achieved through changes in supplies the corresponding path is the parallel of stabilisation through price changes. Namely, incomes and prices remain unchanged while supplies must rise over and above what consumers can afford at current prices out of income, for a length of time V inversely related to the improvement in supplies, until liquid assets reach M^{**}. At that point, signalled by inventories rising above normal levels, supply could fall below the previous level for h periods, fall further for V periods and then be pitched at the long-run equilibrium level exactly when consumers reach asset holdings M^*. The path is illustrated in Fig. 5.4.

An infinite number of alternative paths can be generated by mixing in different proportions the three policy alternatives. The best course would be the following: (i) smooth the course of real consumption, switching resources from accumulation to consumption if this can be done without reducing growth—as it probably can if the structure of investment is more

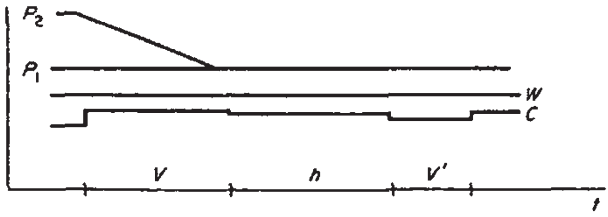

Fig. 5.4 Stabilisation through supply policy

efficiently planned and executed—or at any rate without a growth cost greater than the value put on market stabilisation; (ii) maintain the existing level of money incomes, or if necessary raise them at any time as little as possible consistently with the maintenance of social peace (or at least of law and order without extreme measures); (iii) execute a currency reform aimed at instantly obtaining market clearing at a uniform price level within and outside the state sector; (iv) aim at the maintenance of the price level during the h periods of the second stage of stabilisation, lowering income tax rather than raising incomes or lowering prices (if social pressure imposes higher incomes than required by the manoeuvre, then maintain the increase as low as possible and allow prices to increase so as to preserve market-clearing); (v) continue with this kind of policy during the V' periods of the third stage of stabilisation; (vi) raise income tax and if necessary hike the price level once and for all at the end of the period to make current incomes and liquid assets consistent with the consumption flow. Others might prefer other courses; the choice is political, but one thing is sure: the path to market-clearing and to stabilisation is more complex than the simplistic pitching of an equilibrium price level as usually suggested in discussions about repressed inflation and in policy documents.

5.9 The Cost of Hidden and Repressed Inflation

If overall excess demand in a two-tier Soviet-type economy is supposed to be small, in the limited sense that a sudden and extensive 'flight out of money' with hyperinflationary consequences is highly unlikely, the

question might be asked whether hidden and repressed inflation have a cost for the economy which is high enough to warrant the effort of reaching and maintaining market clearing and stabilising prices.

Hidden inflation has a distorting informational effect, if people actually believe official indices, but since consumer choice will be guided by actual prices the unreliability of official indices is likely to have little effect (except perhaps in wage negotiations). Excess demand at state prices, however, through queueing, informal exchanges and a two-tier price system, does have considerable costs. Queueing time is a direct and sizeable loss of leisure; it is also a transaction cost which, together with the other additional costs of the two-tier market (which often has three or many more tiers, neglected here for simplicity) reduce consumer welfare. There are illegal and immoral implications of two-tier markets and the non-state production sector (pilfering to supply inputs in the non-state sector, etc.). Short of actually rationing supplies with coupons, distribution of real consumption acquires an element of chance which cannot be reduced by fiscal measures; it is as if money consisted of lottery tickets, a system which nobody has ever sponsored. Speculative stockpiling by consumers instead of shops can be wasteful. The persistence of a sellers' market depresses quality of goods and keeps producers out of touch with consumers' wishes, leading to unnecessary inefficiency; persistent excess demand is the main obstacle to the introduction and to the effectiveness of economic reforms, which is a considerable cost in itself. It is doubtful—or at any rate controversial—whether inflation has a real cost in a capitalist market-economy; apart from adverse distributional effects (which can be mitigated or eliminated by compensatory payments to the needier and weaker sections of society) the only tangible drawback being the restriction that inflation poses on the scope of division of labour and therefore welfare. These costs of open inflation are bound to be even smaller in a Soviet-type economy, where redistribution measures can be taken even more swiftly than in a market economy, and the degree of 'division of labour' can be planned regardless of inflation. Open inflation, therefore, is undoubtedly a better alternative than persistent excess demand.

It may or may not be the case that an environment of generalised abundance will make it possible to reduce the scope of markets (of

'commodity production' in Marxian parlance) without adverse effects on labour supply, moral hazards, etc., but it is absurd to pretend that abundance has been achieved already when it has not. As long as markets are used for the distribution of at least some consumption goods, there can be no doubt that the restoration of equilibrium in those markets at a single price is a desirable, indeed essential task for the socialist planner. Markets may be rightly distrusted in their role in investment allocation, and even in the allocation of current resources (for the neglect of externalities, inability to deal competitively with increasing returns, etc.), but remain unrivalled systems of distributing whatever amounts and kinds of consumption goods and services a socialist economy of the Soviet-type makes available to its citizens, apart from public goods (and possibly saturated needs). There is nothing 'socialist' or even 'Marxist-Leninist' about excess demand. There is nothing in the original design or in the philosophy of socialism that justifies the distribution of consumption goods and services to the population through the inefficient, unfair and degrading mechanisms of queueing, informal exchanges and barter. Marx had incited his followers to change the world, not to pretend that they had changed it: if socialism, through a combination of bad luck and ill judgement, has failed to deliver price stability it is better to recognise it than to ignore this failure or treat it as a passing temporary self-regulating minor phenomenon. The persistence of excess demand, indeed the elevation of shortage to a systemic feature, leads to a *prima facie* case for suspecting that it is maintained primarily because it conceals the privileges of the elite through exclusive access to luxuries and necessities at abnormally low prices, while market-clearing prices would reveal and quantify privilege, as its maintenance would require drastically more unequal incomes and wealth.

5.10 Summary and Conclusions

In a centrally planned economy of the Soviet-type, inflationary pressures may arise due to planning error, unfavourable exogenous factors and downward inflexibility of money wages (Sect. 5.2). These pressures do

not always take the form of open official inflation (Sect. 5.3) in view of systemic commitment to the maintenance of price stability; in this case inflationary pressures take the form of hidden and/or repressed inflation.

Hidden inflation is a differential between official (state and non-state) price indices and the actual cost of living to consumers; it arises from understatement of actual prices (in the state and non-state sectors) and/or of the relative weight of the more inflationary goods or sectors. Repressed inflation is *rising* excess demand for goods and services at the actual prices in the state and non-state sectors, i.e. rising excess liquid balances in the hands of the population (often the very existence of excess demand is defined as 'repressed inflation'; see Sect. 5.4).

Estimates of hidden inflation in the recent literature (reviewed in Sect. 5.5) are based on direct recomputation of indices, the calculation of implicit deflators and international comparisons of purchasing power parities. These estimates neglect the impact on the price level of the retrading of goods originally supplied in the state sector and other production and distribution activities outside the state sector (except the collective farm market), i.e. they understate the price differential in the controlled and uncontrolled (legal and illegal) market. Also the *actual* price level, being an average of prices in a two-tier system, cannot be identified with an 'equilibrium' level.

Excess demand and its rate of change (i.e. the rate of repressed inflation) are the object of wildly diverging estimates (Sect. 5.6). These range from alarmed outcries of impending financial catastrophe, based on the visible growth of financial (cash and non-cash) assets with respect to income and expenditure, to cool dismissive counterclaims that excess demand is negligible, based on the observation of uncontrolled transactions in the second economy and on econometric testing and quantification. Econometric models based on quantity-rationing consumer behaviour models seem inappropriate in view of uncontrolled-price transactions where individual consumers are *not* rationed, and therefore the postulated adverse feedback on labour supply is not necessarily present. By and large excess money holdings in the economy as a whole (i.e. with reference to the two-tier market) can be deemed to be small regardless of reliance on econometric evidence, except for the presence of lags

and other minor factors which might slow down the adjustment of money balances to the actual two-tier price level. However, the small size or even absence of excess money holdings (and therefore of repressed inflation) is consistent with large-scale imbalance *in the state sector,* since consumers who—given the two-tier market—voluntarily hold liquid assets, do not refrain voluntarily from converting most or all of them into goods in state shops where they *are* quantity-rationed.

A simple model has been presented illustrating the complexity and time profile of the problem under discussion, due to the difference between the price level which would *preserve* equilibrium if it had been prevailing for a sufficiently long period, and the price levels (depending on the speed of adjustment) and their time paths which can *restore* market clearing at single prices starting from a two-tier market in a state of imbalance (Sect. 5.7). The model has been used to analyse states of persistent equilibrium; creeping repressed inflation (i.e. excess demand growth being tolerated because it remains diffused, fluctuating and not exceeding a critical average threshold); hidden inflation (as defined above in this section) and excess demand/repressed inflation which, when referred *to the state sector,* is large and endemic in Soviet-type economies.

Alternative stabilisation paths and their combinations have been investigated, using as policy instruments the price level, a liquid wealth tax (or currency conversion) and supply improvements (Sect. 5.8). All paths have three stages: transition to market clearing at a single price (instantly reached only with a currency conversion at the 'right' rate) which implies overshooting with respect to long-run equilibrium, restoration of market-clearing habits on the part of disillusioned consumers, and eventually the replenishing of liquid asset holdings by reassured consumers.

Finally, the costs of hidden inflation and above all of excess demand (and repressed inflation) in the state sector, and the two-tier market associated with excess demand at state prices, are discussed (transaction costs, misallocations and hindrance of economic reform, random distributive effects, etc., see Sect. 5.9) and are found to be greater than the cost (if any) of open inflation. In sum, the task of stabilisation in Soviet-type economies is seen as large-scale, time-consuming and complex, and its implementation imperative.

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