

The jockey, horse and racetrack revisited:

Why did CESEE's command economies collapse?

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Abstract

Why did the socialist system that dominated Eastern European countries for much of the 20th century collapse around 1990? Drawing on the newly released wiiw COMECON Dataset and reports that the wiiw was publishing at that time, we explore whether the collapse was due to unfixable systemic flaws of the socialist economies, an unfavourable global environment since the mid-1970s, or policy mistakes made by socialist leaders. Our analysis concludes that all three factors contributed to the collapse. Although the international context – with rising oil prices and interest rates – and the limited openness and competitiveness of socialist economies presented significant challenges, these economies might have survived without the sharp rise in borrowing during the 1970s, the Soviet Union's squandering of the oil windfall between 1973 and 1985, the failure of Gorbachev's reforms in the late 1980s, and exchange rate mismanagement in Hungary, Poland, Romania and Yugoslavia. A particularly grave policy mistake was the Soviet Union's 1975 decision to replace the fixed five-year oil pricing system with one based on annual adjustments using a five-year moving average tied to world market prices, which exposed the COMECON countries to the full force of the 1970s energy crisis, thereby triggering – or at least catalysing – the system's collapse. Finally, we also find that extreme weather events played a significant role by causing crop failures, which led to a loss of hard currency export revenues and subsequent current account issues.

Keywords: socialism, communism, COMECON, Eastern Bloc, collapse, systemic deficiencies, international environment, policy mistakes, climate crisis, energy crisis

JEL classification: N14, P20, P24, P27

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1. Introduction

The 1980s is generally viewed in the literature as the decade when things really started to fall apart in the economies of the Council for Mutual Economic Assistance (CMEA or COMECON). Until that point, although COMECON economies had been falling behind the West economically, they were still growing and there was still a discussion about the pros and cons of each system. However, by the end of the 1980s, the socialist systems had collapsed.

The question of why communism¹ collapsed in Central, East and Southeast Europe (CESEE) in 1989 has occupied scholars ever since. Was it circumstance, or bad choices, or a bit of both? Was it inevitable, or could it have been avoided? If it was just about the inefficiencies of the system, it wouldn't have lasted for decades. So there must be something specific about this period – exogenous shocks, policy, or both – that caused it to collapse. Yet the capitalist world also suffered many economic shocks in the 1970s and 1980s, and capitalism didn't collapse, so the system must be relevant, too. Within this, there were also clearly big differences between the COMECON economies, as communism did not mean the same thing everywhere.

Berliner (2001) put forward three possible explanations for the collapse of communism in CESEE at the end of the 1980s using the entertaining metaphor of a jockey, a horse and a racetrack. The jockey represents policy makers, who made decisions that had implications. The horse represents the communist system, with all of its particular features and rigidities. And the racing track is the international environment, which, after a relatively stable period between 1945 and 1973, became much more volatile and challenging in the second half of the 1970s and first half of the 1980s.

There is support in the literature for all three of these hypotheses. Many have pointed to the **policy decisions** that could have led to the collapse.

Kontorovich (1999) argued, for example, that: '[The] USSR had a viable economy. Slowing growth and the already high burden of military expenditures, combined with the international pressure of the early 1980s, prodded the overly optimistic ruler to risk organisational change. This had the unintended effect of destroying the system.' Many have pointed to the decisions of countries such as Poland and Romania to undertake massive external borrowing during the 1970s as a contributing factor. Kim (1999, 2002), meanwhile, highlighted the hoarding and shortages of consumer goods, which were mostly due to illegal purchases by government entities on the retail market.

Much of the literature stresses decisions on relative capital allocation by communist leaders as a key factor contributing to the system's collapse. Vonyó and Klein (2019) presented new estimates for investment and growth accounts for some of the planned economies (Czechoslovakia, Hungary and Poland), as investment levels and rates of capital accumulation were much lower than officially claimed and over-reporting worsened over time. They found that a decline in investment in both equipment and labour, which was at least partly a policy choice, contributed to the command economies' growth failure

¹ We will be using the terms 'communism' and 'socialism' interchangeably in this report.

in the 1980s. Kukić (2018) found that there was a structural shift in investment during the 1960s and 1970s from higher-productive manufacturing facilities and infrastructure to lower-productive housing, further decreasing aggregate capital efficiency. Writing specifically about the Soviet Union (USSR), Allen (2003) argued that massive Soviet investments in Asian regions with a harsh climate were a mistake. Mikhailova (2004) and (Hanson 2003) also highlighted poor Soviet investment decisions.

The decision by the Soviet Union to increase defence spending in an attempt to maintain parity with the US has also been widely mentioned in the literature as a factor contributing to the downfall. Defence spending was certainly high by the 1980s and used resources that could have been used more efficiently elsewhere (Markevich and Vonyó 2021).

Another major strand in the literature highlights the deficiencies of the **command system** itself.

Ericson (1991) argued that centralised planning created a rigid economic structure dominated by bureaucratic control and state ownership, which prevented the efficient allocation of resources and innovation. He highlights the lack of market-based incentives and the overreliance on administrative orders, leading to misaligned production goals and inefficiencies. The system's focus on output targets rather than profitability drove wasteful production and ignored consumer needs, resulting in poor-quality goods and limited variety. He concluded that these features made gradual reform nearly impossible, as any market-oriented changes threatened the very foundation of the Soviet-type economy, leading to systemic collapse rather than successful transition.

Kornai (1992) similarly argued that socialist economies were inherently flawed due to their central planning and state ownership, which led to chronic inefficiencies. Key to Kornai's analysis is the concept of the soft budget constraint, where state-owned enterprises face minimal financial discipline in the knowledge that they will be bailed out if they underperform. This results in chronic shortages of goods and a lack of innovation, as enterprises lack profit motives and market competition. Kornai argued that, without private ownership and profit incentives, there is no effective mechanism to balance supply and demand, which leads to persistent economic imbalances and waste. He concluded that these systemic flaws ultimately made socialist economies unsustainable in the long term, as they were unable to adapt to changing conditions or foster economic growth effectively.

Gaidar (2002) argued that, in addition to being incapable of reform, the system could not even maintain stability given the economic challenges of the 1970s and 1980s. Perestroika made economic mistakes, but these were not decisive. It was a system incapable of reform under economic conditions under which it could no longer function. Allen (2003) also argued that the USSR was doomed to fail. Ignoring prices meant a misallocation of resources and a system that was incapable of sustained technological advance. There was too much investment in renovation and expensive raw material extraction, and not enough in greenfield projects and energy saving.

Broadberry and Klein (2010), meanwhile, argued that central planning didn't work. Comparing Czechoslovakia with the United Kingdom, they claimed that central planning was only able to achieve a satisfactory productivity performance during the era of mass production but could not adapt to the requirements of flexible production technology during the 1980s. Banerjee and Spagat (1991), meanwhile, showed that planning mistakes became more likely as economies became more complex. This became more costly for the non-Soviet economies after the oil shocks of the 1970s.

A third major strand in the literature highlights the **role of the international environment**. Here, three main factors are highlighted.

First, changes in global energy prices, particularly the oil shocks of 1973 and 1979. Kukić (2018) found that, in the case of Yugoslavia, the 1979 oil shock contributed to growth retardation. Meanwhile, when oil prices fell again in 1986, this had a serious impact on the Soviet Union, and a chain reaction started throughout the rest of Eastern Europe.

The second factor was the Volcker interest rate shock, still the most significant period of monetary tightening since the Second World War. This had a material impact on the COMECON economies, in particular, as they had built up large external debt in the 1970s.

The third factor is the recession in Western markets, which came largely as a result of the first two points.

In this context, our paper aims to reassess the debate between the jockey, horse and racing track explanation using two new sources of information. First, we return to newly digitised wiiw reports and papers from the time to assess how the collapse of the system was being analysed and understood in real time. Second, we use the newly released wiiw COMECON Dataset to see if this newly standardised data can provide fresh insights into what caused communism to collapse in CESEE. Moreover, we combine data from the wiiw COMECON Dataset with historical climate data to shed light on the impact of climate change on agricultural production, trade and national income.

2. wiiw assessments of the time

The Vienna Institute for International Economic Studies (wiiw) was founded in 1972 (under a slightly different name) and immediately started with its country monitoring and the publication of relevant research reports. The very first one dealt with the calculation of the gross national product in Eastern Europe using Western methods (Askanas 1972). Energy consumption in the Soviet Bloc was identified as a crucial issue. Korda (1977) summarises: 'The Soviet bloc is the only compact industrialized region with an adequate energy resource base and with considerable exportable surpluses of fossil fuels. Paradoxically, however, the region has been plagued by serious energy supply problems right through the postwar period. Rationing of fuel and power had been in force for close on two decades after World War II, and various restrictions are still in force. The energy supply situation started improving in the late 1950s after Soviet oil, and later gas, became available in larger quantities. However in the 1970s, and especially after the Yom Kippur war, the energy situation started deteriorating again. The outlook for the future is dim, and especially in the industrially most developed and energy deficient countries of the bloc (CSSR, GDR), energy might become a serious barrier to further economic growth. The main factor of this rather paradoxical situation is the inability of the bloc to develop the huge Soviet resources in time (and efficiently). However, presently it is the importance of energy as a hard currency earner in the lucrative Western markets which impels the USSR and other Soviet bloc countries to divert huge quantities of energy to capitalist markets. More important, however, is the excessive intermediate energy consumption, which is characteristic of all Soviet bloc economies, and can be linked to the way these economies function.'

A wiiw forecast report (Askanas 1980) finds a marked deceleration of economic growth in Eastern Europe in 1979. Hungary and Czechoslovakia (CSSR), in particular, registered hardly any growth, and Poland was in outright recession for the first time since the Second World War. Overall, the CMEA economies missed their planned growth rates by about half. Weather-related difficulties in Poland, the CSSR and the German Democratic Republic (GDR) were often used to explain the disappointing economic results in 1979. In fact, transport and electricity supply proved to be particularly noticeable bottlenecks in the cold winter, which considerably impaired the production process in industry and construction in the first months of 1979. In several countries (Poland, the CSSR, Hungary and the USSR), agriculture also suffered from the unfavourable weather conditions. However, there was also a long-run trend observed, which was mainly determined by the increasing scarcity of production factors on whose increased use the traditional growth strategy was based. Despite declining capital productivity and falling growth in labour productivity, the increase in employment, the expansion of production facilities, and the increased exploitation of natural resources had ensured satisfactory growth of national economies for some time. However, due to the limited growth in labour, capital and natural resources, this strategy had to be abandoned.

From the very beginning, wiiw was also financed by projects. A project study commissioned by the World Bank (wiiw 1981) looked at longer-term economic developments of the CMEA economies. The report concludes: 'In the first half of the past decade a number of transient factors acted in favour of economic development of the CMEA countries. At a time when in the world economy the prices of

primary products and energy started abruptly to climb, the smaller CMEA countries still had the benefit of stable and low prices for imports from the USSR, fixed according to the price levels of the late sixties. In addition, at the beginning of the seventies all of the CMEA countries, including the USSR, initiated an import-led modernization drive financed by western credits. These factors temporarily offset the systemic weaknesses, which were mounting as the economies were reaching higher development levels and their structures were becoming more complex. The adverse development began to manifest itself already in the middle of the seventies and became stronger at the end of the decade.'

The wiiw (1981) study identified a number of internal and external factors that accounted for the poor performance of the CMEA economies. While internal factors dominated in the USSR, external constraints played a much bigger role in the CMEA countries of Eastern Europe. Of the internal factors, the slowdown of production growth in the energy sector was of the greatest importance in all countries. The low productivity of new fixed capital assets and the large volume of unfinished projects put a brake on investment expansion. In addition, the growth of the workforce in the CMEA region was markedly slowing due to the downward trend of population growth in the late 1950s and in the 1960s. The outdated planning and management system, with its poor motivation structure for management and the workforce, acted as an additional brake on growth. Especially for the smaller CMEA countries in Eastern Europe, which were more closely linked to the world economy than to the USSR, the disturbances of the world economy (e.g. recession, inflation and high interest rates) were of even greater importance than in the past. To varying degrees, the smaller CMEA countries had accumulated considerable external debts, the servicing of which was exerting a heavy strain on economic development. In addition to the disturbances coming from the West, the smaller CMEA countries were also affected by the worsening of the terms of trade in relation with the USSR. For example, the Soviet Union changed its policy on oil pricing. Until the first oil price shock of 1973/1974, it sold oil to COMECON countries at prices that were fixed for five years and normally well below market prices (following the so-called Bucharest Principle). Soon after the first oil shock, in 1975, it changed this to make it a five-year moving average of the global price and started adjusting the price every year (i.e. the so-called Moscow Principle). This meant that the oil price started to rise every year for the COMECON countries, while the prices of the manufactured products that they sold to the USSR only changed a little. What's more, the quantitative restrictions that the Soviet Union imposed on energy deliveries to the other CMEA countries had even stronger negative effects than the price increases.

More specifically, the wiiw (1981) report looked at some crucial sectoral developments. In agriculture, in the first half of the 1970s, it was observed that: 'Livestock production increased at above average rates, in keeping with the plan target, to satisfy the rising demand for meat as far as possible through increased domestic production. It was aided both by the application of technical-biological means and by an increase of producer prices. But the measures did not suffice to overcome the dependence on imports. In the CSSR, [the] GDR and Poland it was even necessary to increase imports of feed grain and other types of fodder. Despite the very sizeable increase in livestock production Poland experienced meat shortages mainly because of keeping stable prices in the face of fast-rising money incomes.' Moreover: 'The development of Soviet agriculture during the period under review showed strongly fluctuating growth rates with negative values for 1972, 1974 and 1975. The instability of growth was caused by the large differences in harvest yields due to climatic conditions.'

For agriculture in the second half of the 1970s, wiiw (1981) found that: 'In most countries of the region, the structure of agricultural production has shifted from crop production to livestock production. The constant increase of livestock and meat production, and vigorous fluctuations of the weather-dependent grain harvests occurring at the same time, have led to a growing dependency on feed grain imports. This aggravated the already strained balances of payments, especially in recent years when fodder prices on the international markets rose sharply. In the case of Poland, for instance, more than one third of its US \$ 20 billion debt (end of 1979) resulted from grain purchases in Western markets.'

In the mid-1980s, several wiiw publications addressed the pressing issues of agriculture, energy and debt. Lukas (1984) presented a long-run account of the CMEA agricultural sector since 1971 and concluded that the frequent production shortfalls in grain and the increasing demand for feed for meat production – both to improve the meat trade balance and to increase meat consumption – contributed to the declining level of self-sufficiency in grain in the CMEA countries.

Balkay (1985) offered an in-depth analysis of the CMEA countries' mineral economy. He concluded that: 'The rising costs of developing mineral deposits in the Asian USSR and of building the infrastructure required to get the output to the centres of consumption constitute the key problem of the CMEA Seven's mineral economy. [...] Imports of fuels and energy from the USSR are crucial for all the CMEA Six countries except Romania. Imports of iron ore and of many steel-alloying and other metals and phosphate materials are crucial to all of them, and imports of potassium materials to all of them except the GDR. [...] Despite the advantages of the USSR's vast mineral wealth, there has been in the CMEA a nagging shortage of many minerals and mineral-based commodities, due to (1) the production of energy and materials being persistently surpassed by consumption, and (2) very high energy and material intensities per unit of national income or GDP. [...] The pricing of commodities in intra-CMEA trade is based on the Bucharest Principle, by which transactions should have for a guideline price the price, averaged over five years and cleansed of 'capitalistic' distortions, established in the 'principal market' of the commodity in question, which is the market in which the CMEA member countries buy/sell or, if they do not actually do so, would be likely to if they did. [...] The Moscow Formula or sliding price clause introduced in 1975 states that the prices so calculated should be changed every year rather than every five years or more, as used to be the case before. [...] At least as important for the solution of the nagging shortages of raw materials and fuels intra-CMEA would be a reduction of the member countries' high to very high materials and energy intensities, by thrift and by the changing of production and product structures. The first of these, however, is not apt to give wide-ranging results, and the second is liable to be no less capital-intensive than mining and mineral-processing development.'

Fink and Mauler (1984, 1985) provided a comprehensive review of Eastern Europe's indebtedness and East-West trade. They reported that the CMEA countries had made extraordinary efforts in the first half of the 1980s to turn the current account deficit in hard currencies from USD 10.5bn in 1981 to a surplus of more than USD 4bn in 1983. Strong import cuts were at the heart of the current account adjustments.

During the second half of the 1980s, wiiw publications focused on the reform potentials of the command economies. Kowalik (1986) concluded, that: '[I]f we assume that the process of reforming the economy of real socialism is tantamount to depoliticization of most of the economic decisions, to basing them on quantifiable monetary criteria – then pluralization of the forms of ownership (which should above all mean restricting proportions of the state sector) must be no less significant than delegation of a large number of decisions by the centre down to the enterprises.'

Laski (1987) summarised: 'Disregarding Yugoslavia and China, the only country which till now has started a basic reform is Hungary. Even there the reform started already in 1968 is only half successful. Direct central planning has been replaced by indirect central planning, bringing some positive results but leaving a lot of old imperfections unchanged. A marked improvement took place in those areas where the private sector was allowed to expand; this applies first of all to agriculture. Basic reforms were tried outside Hungary too, but did not last for long. The reasons for their failure can be traced to geopolitical factors, to political and ideological considerations, to the 'vested interests' of those who have a stake in the preservation of the old system and, last but not least, in the imperfections of the blueprints of basic reforms themselves.'

Kosta (1987) emphasised: 'The factors that blocked – and others that promoted – reform in the past were political, social, ideological and economic. The political system is determined by the monopoly of dominance of the bureaucratic apparatus of functionaries – the 'Nomenklatura' – which must dread some loss of power if economic decisions are decentralized. Not only the ruling elites but also other social groupings incline to conservative attitudes; this is true of sections of the economic bureaucracy, including enterprise managements and, last not least, it applies to those workers who must expect to have to face challenges of higher qualifications demands, of whom higher performance will be expected and more labour mobility. Ideological prejudices, too, come into play, such as, e.g., the dogma of the incompatibility of socialism on the one hand, and private enterprise and market regulation on the other. And finally, the party leaderships are concerned about economic uncertainties and risks in the wake of a transformation of the system. Such circumstances are counteracted by other propelling forces, which promote reform: among them, the ability to learn, shown by some political leaders of the younger generation, who are ready to discard obsolete ideological dogmas; and the support of a large part of the working population in town and country, because they envisage, tied up with the reform, the chance of at long last improving their unsatisfactory living conditions. But there is the need for a carefully conceived and well-planned strategy for the transformation of the economic system if the reform should bring the expected results. In the long run it will be, more than all else, the economic needs of a market-oriented economic reform that will bring a gradual democratization of society to fruition.'

Meanwhile, Stankovsky (1987) observed that: 'East-West Trade in 1986 was dominated by the temporary collapse of the oil market (spot market prices dropped from 27.5 \$/barrel in 1985 to 13.6 \$/bl. in 1986) and the sharp depreciation of the US dollar (by 26.2% against DM and by 13.5% against SDR). The USSR, earning 80% of its foreign exchange through energy sales, was hit hardest. Losses in purchasing power resulted also from the structure of the Soviet trade with the West: while the USSR earns mainly US dollars, its purchases are invoiced in other (West European and Japanese) currencies. Due to these unfavourable conditions the East had to slash imports: OECD exports to the East dropped by 10% in real terms (USSR -16.6%, Eastern Europe +0.3%) – the most substantial decline in more than twenty years. Contrary to this, Western imports from the East increased by 8.4% in real terms (USSR +13.7%, Eastern Europe +1.4%). Most of all Eastern deliveries of energy were raised: OECD imports of oil and oil products from the East (85 mn t) were by 14% higher than in 1985; the share of the East in total OECD imports rose slightly to 7.3%. Also West European imports of Soviet gas (39 bn m³) showed a considerable increase (+22%). On the other hand Eastern countries were not very successful on Western markets for manufactures. Owing to the sharp increase of Dollar prices of Western exports (+18%) and to the drop of import prices (-11.4%; USSR -23%, Eastern Europe +7.1%), Western terms of trade vis-à-vis the East improved substantially (+33.2%; against the USSR +53.2%, against Eastern Europe +10.6%). Thus the trade balance of the OECD with the East improved by 3.5 bn \$. In current

values OECD exports to the East increased by 6.2% to 35.9 bn \$, while imports dropped by 3.9% to 37.2 bn \$. Gross liabilities of the East rose from 99 bn \$ by end-1985 to 113-118 bn \$, according to preliminary estimates. Net debt increased by 10-15 bn \$ (in 1986 net debt had amounted to 79-84 bn \$). Approximately two thirds of this increase can be attributed to the revaluation effect.'

Fink and Havlik (1989) were re-examining the problems of East-West GDP comparisons and found that: 'Methodological, systemic and political differences hamper the direct growth and level comparisons between the centrally planned economies (CPEs) and market economies (MEs). The official growth figures released by the CPEs are mostly biased upwards whereas the main obstacle to the level comparisons is the lack of a proper convertor for converting the CPEs' income in national currency into dollars. None of the available estimation methods is free from a certain bias. The repricing method (ICP) requires the cooperation with national statistical offices (to which only three CPEs are ready at the moment) and the submitted data raise some doubts about proper quality accounting. The physical indicators global (PIG) method may be applied uniformly to all CPEs as it requires no detailed information about relative prices. Nevertheless, a certain (most likely upward) bias cannot be excluded, too, because of the tendency to inflated output reporting in CPEs and quality problems similar to ICP method. Mixed approaches [...] cannot be recommended because the pitfalls inherent to every single method are further aggravated by the unequal treatment of countries compared. The authors, after examining the pros and contras of individual methods, prefer the PIG estimates and place the CPEs at par with less developed MEs: the GDR and Czechoslovakia near Italy and Spain; Hungary, the USSR and Bulgaria near Greece; and, finally, Poland, Romania and Yugoslavia near Portugal.'

The first wiiw publications after the fall of the Berlin Wall diagnosed the end of an era and started to deal with issues of a transition to market economies. Stankovsky (1990) wrote a post-mortem to East-West trade and observed that: 'Numerous attempts of the Eastern countries at reforming their economic system failed, due to political restrictions. Systemic changes in the smaller (satellite) countries were impeded by the Brezhnev doctrine. Only the 'new political thinking' in the USSR brought an end to the Soviet hegemony over the satellite countries in Central Europe. Glasnost and perestroika were probably triggered by the knowledge that worsening economic backwardness endangered the position of the Soviet Union as a leading military power. In 1989 the communist regimes in the four Central European countries – GDR, Poland, Hungary, CSFR – were overthrown and replaced by democratic governments. The GDR opted for a unification with Western Germany. [...] All Eastern countries, including the USSR, decided to restore the market economy. The four Central European countries envisaged also a far-reaching privatization of the state-owned enterprises. In the years to come a very difficult transition period must be expected in the East: not only the economic system but also the industrial structures will have to be changed. In addition, tremendous ecological problems – the worst legacy of the old regimes – must in some way be dealt with. The disintegration of the CMEA will cause a number of problems, especially for the smaller Eastern countries, which are almost totally dependent on Soviet oil and gas deliveries. A survival of the USSR – the last colonial power in the world – in its present form seems more and more uncertain. The 'old' East-West trade does not exist anymore.'

Havlik (1990) took stock of COMECON countries' exchange rate policies and the problem of conversion: 'None of the CMEA countries employs today exchange rate policies and a foreign trade monopoly in their traditional form. Instead, different moves in the direction away from administrative controls have been attempted over the years. Within a general trend towards decentralization of foreign trade, liberalization of travel restrictions and steps aiming at the introduction of more realistic exchange rates

and market elements into the economy and at achieving the convertibility of national currencies in future, there are also substantial differences between the individual countries. The development of foreign trade reforms and the related exchange rate policies may serve as an illustration of how difficult and time-consuming the transition to convertibility is. Convertibility is a category which makes sense only under the conditions of a market economy. To create such conditions is not an easy task even if major political obstacles to really market-oriented reforms have largely fallen recently. However, many substantial economic obstacles to convertibility have remained. Even in the West, where various property forms and markets had never ceased to exist, the introduction of (partial, only for current account transactions) convertibility after World War II took about fifteen years. In the East, where the problem of convertibility is part of the transition from command economy to a market-oriented system, it may altogether take a similar time span. Generally, in the transition period central planning and the foreign trade monopoly have to be gradually abandoned and prices have to be formed at markets. At the same time, the economy must be opened up to foreign competition, and domestic monopolistic structures must be transformed by means of decentralization and privatization. The exchange rate policy in this period must be oriented towards the introduction of realistic exchange rates: not necessarily market exchange rates from the start, but exchange rates which would be uniform and in equilibrium with other financial policy instruments (prices, taxes, customs tariffs, etc). An acceleration of reforms in recent months may possibly shorten the time span between the individual reform steps in future, but the creation of economic preconditions for full convertibility will nevertheless take years.'

Gabrisch and Laski (1990) elaborated on the transition from the command to a market economy: 'On the way from a command to a market economy two targets must be aimed at concurrently: first, change of the ownership structure and, second, abolishing the shortage economy. As a radical privatization of the economy requires time, a 'cohabitation' between a big state enterprise sector and a market mechanism would be unavoidable during some transitional period. On the way from a seller's to a buyer's market prices must be basically liberalised although some price controls can be useful too. The price liberalisation should be accompanied by a stabilisation programme which as a rule would comprise the following elements: hardening of the 'budget constraint' of the firms meaning financial responsibility for their decisions; reducing deficit spending by cutting first of all subsidies; controlling demand of private households by conversion of the forced into voluntary savings and by an active incomes, mainly money wage, policy; reorganising the banking system and a restrictive monetary policy; supply policy measures as a necessary supplement to the policy of global reduction of demand making possible the productive utilization of resources made free in other parts of the economy; last but not least labour and social policy measures increasing labour mobility, creating unemployment insurance, introducing retraining measures, transfer payments to the poorer households using part of the budgetary savings resulting from subsidy cuts etc. Integration into the world economy necessitates the abandonment of the state's foreign trade monopoly and foreign exchange control, the introduction of a unified exchange rate, internal convertibility of the currency (initially for goods and services), and appropriate tariff policies. Full convertibility will have to be approached in concurrence with the transition to free market conditions in other fields. [...] An important problem is the choice between a shock therapy and a more gradual approach. A shock therapy can become indispensable if there is hyperinflation, but it is accompanied by high risks: a severely restrictive fiscal and money policy may set off a chain of enterprises' bankruptcies, while only a small proportion of resources thus set free can be absorbed into other sectors of the economy. Secondary effects such as a decline in demand for goods produced by the efficient sectors may exacerbate recessive tendencies.'

The wiiw forecast reports of the early 1990s reported on the transition crisis due to severe external and internal shocks. Gabrisch (1991) mentions that: 'The shrinking process in the whole region's economy continued during the first quarter of 1991, encompassing industrial and commercial sectors, excepting the (still very weak) private economy. Compared with the last quarter of 1990, when it had shown signs of slowing down, the process of contraction may even have accelerated again. Industrial production in Central and Eastern Europe (CEE; Bulgaria, CSFR, Hungary, Poland, Romania and Yugoslavia) declined by about 13% as against the first quarter of 1990. With the 5% decline in the Soviet Union this amounted to an average decline of about 7% for the whole region, meaning an accelerated decline against 1990 overall (decline approx. 5%). Without surprise one notes the accelerated decline of Soviet industry, though by comparison with losses in other sectors (agriculture: by 13%) it appeared moderate. In view of the weak reform thrust, the Soviet economy still presents an almost perfect example of a 'recession by shortages' (increasing bottlenecks in material supply), such as otherwise may be observed only to some extent in Bulgaria and Romania.'

Gabrisch (1992) observed a deep depression combined with massive inflation: 'Output of industry of CEE(5) countries was down by presumably 17% after three quarters as against the same period of the previous year. In Yugoslavia and the Soviet Union the decline amounted to 18% and more than 6% respectively [...]. In all countries, the crisis deepened from quarter to quarter. For the fourth quarter, no stabilization can be expected for any country. Thus, for the whole year 1991, a decline of industrial production in Central and Eastern Europe of about 18%, in Yugoslavia of almost 20% and in the Soviet Union of 8% to 10% is to be reckoned with. Officially reported data include only in few countries the dynamically expanding private sector, and even there the coverage is incomplete. However, the private sector can be assumed to be much too small still for its growth to exert a decisive impact on overall industry [...]. Gross agricultural production is expected to decline by 5-6% in CEE(5) (mainly due to losses in animal production) and by 15% in the Soviet Union (grain harvests dropped from 213 mn t in 1990 to 160 mn in 1991), and to increase by 8% in Yugoslavia: for the whole region a 10% decline can be assumed. [...] In CEE(5) registered unemployment was at 4.9 mn persons by the end of September 1991, by about 2 mn persons more than at the end of 1990. In the third quarter alone it increased by 900,000. [...] In almost all countries with now largely free price formation the governmental efforts at lowering the rate of inflation to the desired levels by income policy (wage control), monetary policy (cutback of money supply) and fiscal policy (reduction of budget deficits) measures failed.'

Laski (1992) discussed first experiences of the transition and stated that: 'The GDP, which already in 1990 had declined in Eastern and Central Europe (including Yugoslavia) by about 8 per cent, sank by another 15 to 16 per cent in 1991. At the same time the GDP of the Soviet Union registered in 1991 a decline of about 17 per cent. There is no example in modern history of a fall of GDP of this size in a peaceful period. [...] The existing hardships in the Economies in Transition (EITs) are mainly a heritage of the communist past. Another important factor is the collapse of the CMEA, and related losses of markets for, and suppliers to, EITs almost from one day to the next. Although both factors play an undeniable role, they are very often overemphasized by ruling groups in order to divert attention from economic strategies and policies which, to a considerable degree, are responsible too for the present situation and lack of perspectives. It is the firm conviction of this writer that, if these policies were different and mistakes avoided, the situation would be better in the sense that hardships would not go beyond the level determined by the heritage of the past and by external circumstances. [...] The EITs are confronted with three main tasks: (a) stabilization and introduction of market clearing prices, (b) privatization, and (c) restructuring and growth. While the first goal should be tackled at the very

beginning of the transformation process, the two remaining tasks require rather years than months or days. From this point of view the whole discussion concerning the sequencing of the transition is beside the point. Proponents of a shock therapy frequently argue that gradual changes in the past were always absorbed and neutralized by the existing structure of command economies. But they forget that previous blueprints of change were reforms inside a socialist system (like the well-known NEM in Hungary since 1968, and the hesitant reform attempts in Poland, Czechoslovakia and other countries). These reforms were not aimed at abolishing central planning (and the prevalence of collective property of material production factors) but at improving it. [...] All these reforms failed, not because they were gradual, but because command economies proved to be incapable of being reformed. The present EITs are not confronted with reforms as in the past, but with a systemic transformation [...]. The generation of economists which is now directing the transition in Eastern Europe has no immediate experience with the capitalist economy in their countries before the Second World War. They know capitalism mostly from microeconomic textbooks and from superficial visits in the most developed Western countries. Their consciousness has been moulded by the absurdities of the Soviet-type economy in their countries; they are inclined to identify every economic activity of the state with these absurdities, and to promote a purely capitalistic system with a marginal role of the state in economic matters. The social climate is propitious for this attitude; it is supported also by foreign experts, mostly monetarists, who in the majority of cases have no knowledge of these countries, and – as a rule – by theoretical inclinations of such potent institutions as the IMF and the World Bank. It should be added, however, that these institutions do not have an official theoretical position. Thus they are often ready to discuss the problems with local economists and to look for solutions acceptable to both sides. A good example is Hungary, where – with full IMF approval – no shock therapy has been applied. The sad truth is that very often the ruling groups in EITs are ‘plus catholique que le pape’ and use the prestige of the IMF as a cover for their own extreme liberal inclinations. The situation is, however, much more complicated. The transition from socialism to capitalism is without any precedents [...]. Under such conditions it is not enough to decree the introduction of free markets and then wait for the market forces to do the job. What is badly needed is to analyse the situation, to look for new solutions and, most of all, not to neglect economic policy at a time when it is needed more than ever.’

Grosser (1993) concluded that: ‘In 1992, development patterns in the former socialist countries’ economies of the first six months basically held out. In the whole region, production kept declining, further falls in industry were combined with shortfalls in agricultural production as against 1991, and unemployment rose further. [...] Progress in the fight against inflation in most of the six countries notwithstanding, state budgets have come under increasing pressure in most of them. Foreign trade and the external financial position showed improvements after the 1991 shock caused by the break-up of CMEA.’

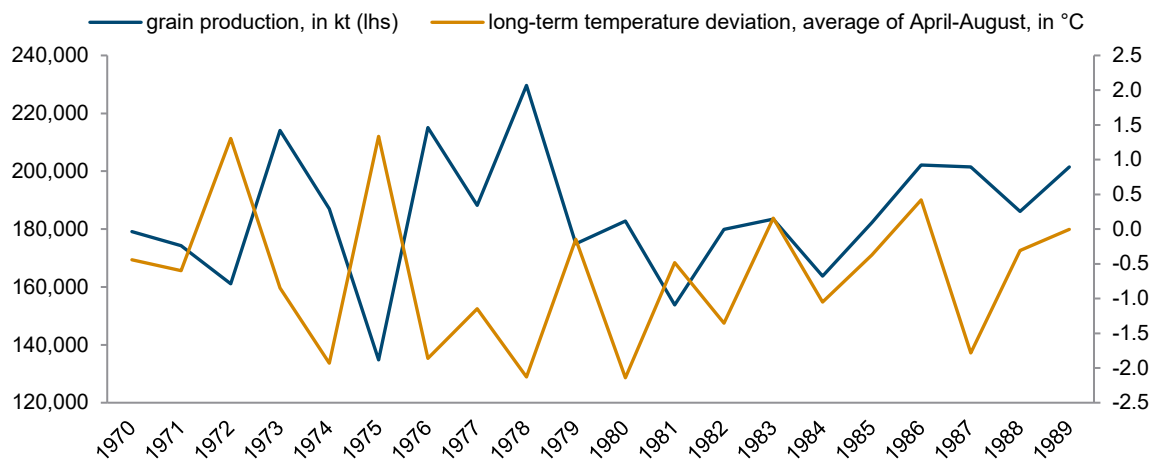
Finally, Landesmann (1993) touched upon a topic that was by and large banished at the time, suggesting the use of industrial policy in the transition process: ‘Since the beginning of the dramatic recent wave of economic reforms in 1989, it was difficult to have a rational economic argument about the specific role which industrial policy can play in the current context of the transformation in Eastern Europe. The notion of industrial policy was too highly charged with associations of past planning experiences in communist countries; hence it was seen as anathema to any transition towards a Western-style market economy. In this atmosphere it was overlooked that industrial policies form an integral part of the set of policy instruments used by Western economies and that more recently economic theory has developed rigorous foundations for such policies. They also featured prominently in the experiences of countries which embarked upon successful catching-up processes. [...] [The]

economic transformation currently taking place in Eastern Europe involves a major conversion of existing capacities, capabilities and organizational structures as well as the building up of new ones; such a process is, by definition, a time-consuming one. It will, on current estimates, take [...] up to 20 or 30 years. Second, given that the existence of markets and of market conform behavior is a necessary prerequisite for the effective functioning of a market economy, but that these conditions are only gradually emerging in CEE economies, the transition process cannot occur without a relatively high degree of state involvement. It is clear that the experience of economic reform in Eastern Europe provides much evidence for such a view. Third, it is in the nature of the evolution of market behavior that in periods in which environmental parameters are constantly and dramatically changing (as they currently do in CEE economies), resources are less likely to be committed for the long term than the short term. Under such conditions there is an important role for industrial policy to bring public resources to bear in areas which would, even in normal circumstances, be neglected by private agents, let alone in the current circumstances of Eastern Europe. Infrastructural investment and training are two such areas which have been shown to be crucial for a catching-up process [...]. Fourth, [...] the main impact of the state on the evolution of market structure will lie in the policies pursued with respect to the reorganization of 'strategic' state-owned enterprises on the one hand, and small- and medium-sized enterprises on the other hand. In both these areas, policymakers in Eastern Europe should take a pragmatic look at the experiences in Western Europe over the past two decades in which policies of restructuring of state enterprises and the support of the small- and medium sized enterprise sector were evolved. In the current context of Eastern Europe, the latter is intricately linked to the evolution of financial markets and financial organizations. Fifth, a strong emphasis on export orientation has been the hallmark of successful catching-up of a great number of economies. Eastern Europe has some extraordinary potential comparative advantages (particularly in its human infrastructure), which could allow it to embark upon a successful upward movement in the international division of labor. Evidence from other successful economies indicates that industrial policy can be an important ingredient to tap and to further develop that potential.'

3. The climate crisis and the beginning of the end of the Eastern Bloc

In this chapter's econometric analysis, we examine the impact of the climate crisis and the initial stages of the Eastern Bloc's dissolution – a relationship that, to our knowledge, has not been analysed before. Interestingly, average temperatures in the 1970s and 1980s were below the long-term average for the 1940-2024 period (Figure 1). However, individual years saw temperature spikes (Wypych et al. 2017), reaching or even significantly exceeding this average, which already reflects elevated temperatures compared to pre-industrial levels. Notably, during years with higher temperatures in the grain-growing season (April to August), grain production in Eastern Europe declined sharply. The years 1972 and 1975 were particularly severe, with spring and summer temperatures nearly 1.5°C above the long-term average. Consequently, grain production in these years dropped by between 13% and 27% compared to the average production of the 1970s and 1980s.

Figure 1 / Eastern Bloc grain production and average temperatures during the grain-growing season, 1970-1989



Note: Sum of grain production of and average of the average deviation of temperatures between April and August during the 1940-2024 period for the eight socialist countries analysed. Due to data availability, for the CSSR, the GDR, the USSR and Yugoslavia, we approximate temperature deviations using data from modern-day Czechia, Germany, Ukraine and Serbia. Sources: wiiw COMECON Dataset, OurWorldInData.org.

Although a few voices in the 1970s speculated that Earth might be heading toward an imminent ice age, the prevailing consensus in peer-reviewed literature recognised global warming as the dominant trend (Peterson et al. 2008). However, two potentially conflicting phenomena were widely discussed: the warming effect of increasing carbon-dioxide levels and the cooling influence of aerosols released into the atmosphere by industrial activity. A significant source of both was the highly inefficient use of energy in the Eastern Bloc's heavy industries (Koutaissoff 1986).

This inefficiency also contributed to severe environmental issues in CESEE, including widespread air and water pollution (Mazurski 1991), deforestation, soil degradation and increasing salinity, culminating in catastrophic events, such as the Chernobyl nuclear disaster (Singleton 1987). While some of these challenges were acknowledged by communist leaders, efforts at environmental protection remained largely inadequate (CIA 1985).

Global-scale extreme climate events were a key driver of the global food crisis in the early 1970s, as unusually poor harvests affected many of the world's major agricultural regions (Riley 2017). The crisis was exacerbated by unprecedented grain purchases by the Soviet Union and sharp increases in oil prices imposed by oil-exporting countries, which left poorer nations struggling with rising costs for both food and energy.

Agriculture was the Achilles' heel of the Soviet economy, being the sector least suited to the rigidities of a command economy. The need for large agricultural imports, chronic food shortages and the inefficient use of productive resources led many to conclude that agriculture played a pivotal role in the eventual collapse of the Soviet economic system (Cook 1992).

In a series of regressions, we analyse how temperature changes influenced grain and wheat production during the 1970s and 1980s. Table 1 in the Appendix presents the results for the impact of monthly temperature deviations from the long-term average (1940-2024) across the countries of interest. For the CSSR, the GDR, the USSR and Yugoslavia, we approximate temperature deviations using data from modern-day Czechia, Germany, Ukraine and Serbia.

Specifications 1 and 3 use the first difference in overall grain production as the dependent variable, while specifications 2 and 4 specifically focus on wheat production. In specifications 3 and 4, we include the lagged dependent variable alongside the first difference of the crop-sown area (which is also included in specifications 1 and 2) as an additional control variable. All specifications incorporate country- and time-fixed effects with robust standard errors. A similar approach is applied in subsequent regressions.

While the control variables show statistically significant coefficients with expected signs, among the monthly temperature deviations, only August demonstrates statistical significance in three out of the four specifications. The coefficient for August has a negative sign, indicating that above-average temperatures during this critical harvest month were particularly detrimental to grain output. Given that there are slight differences in the climate in different months in different CESEE countries, it might be useful to look at longer periods, as well.

Analysing average seasonal temperature deviations for spring (March, April, May) and summer (June, July, August) in Table 2 of the Appendix reveals that excessively high temperatures in spring were associated with lower harvest yields. This sensitivity, together with the above-mentioned results, likely stems from the critical role that both seasons play in grain growth. However, due to potential multicollinearity, it is challenging to isolate the individual effects of each period, indicating that both spring and summer temperature deviations probably had a significant impact on crop production.

Through their impact on grain output, temperature anomalies influenced the overall relative food trade balances (i.e. the ratio of foodstuffs and food processing industry products as well as non-food raw materials exports over imports – data which does not exist for Yugoslavia) of Eastern Bloc countries.

Agricultural products were among the few goods that were standardised and of sufficient quality to be accepted by Western importers in exchange for hard currency. Table 3 of the Appendix presents the results of how per capita changes in grain production affected first differences in the relative food trade balance. Additional control variables include changes in the fiscal (deficit) balance (which serves as an indicator of aggregate demand management), relative fuel trade balance (i.e. the ratio of fuels, mineral raw materials and metals exports over imports), and per capita meat production – an increasingly competitive factor with grain exports during that period of time. Fuel trade was another critical sector involved in foreign exchange transactions. Specifications 10 and 12 further incorporate the lagged dependent variable for a more robust analysis.

In the full sample analysed in specifications 9 and 10, grain production appears to have only a marginally significant impact on food trade balances, if any. Moreover, none of the other control variables show statistical significance. However, when the Soviet Union (as the region's main provider of energy) is excluded from the sample in specifications 11 and 12, the analysis reveals statistically significant and positive effects of grain output on relative food trade balances. Additionally, the relative fuel trade balance shows a weakly significant positive impact at the 10% significance level. These findings suggest that as the Soviet Union transitioned to market-based pricing for fuel products sold to its Eastern Bloc satellites, other countries in the region were compelled to increase their relative food exports to generate sufficient hard currency to finance the rising costs of reduced fuel imports.

Finally, Table 4 and Table 5 of the Appendix examine how relative fuel and food trade balances, along with grain production, influenced real national income growth rates in samples that include and exclude the Soviet Union. In every alternate specification, the lagged dependent variable is added as an explanatory variable. Alongside country- and time-fixed effects, control variables include changes in the real capital stock and population size.

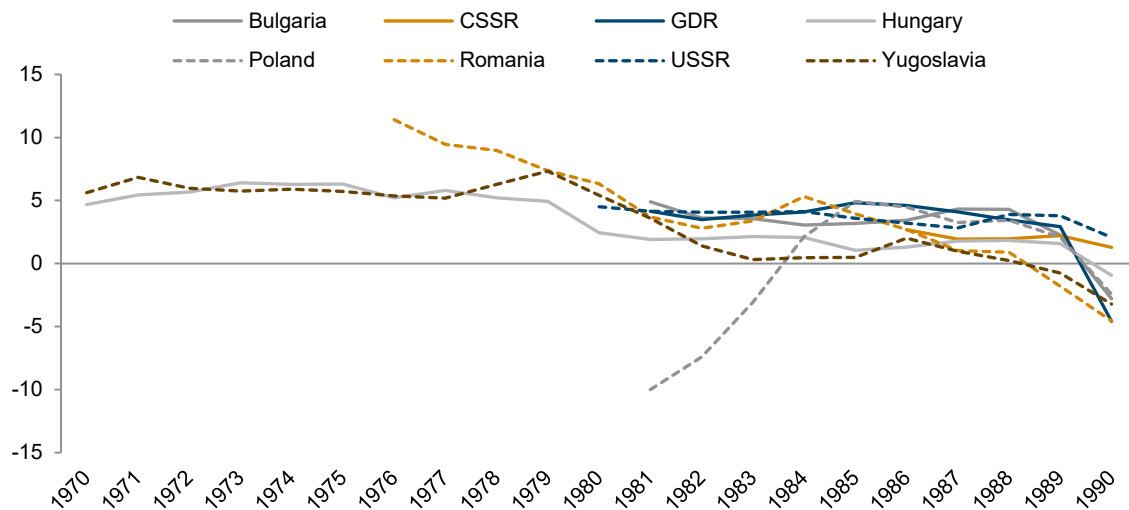
Interestingly, very few coefficients are statistically significant in explaining real national income growth. Notably, the change in per capita grain production consistently shows a positive and significant impact on growth. Surprisingly, increases in the capital stock exhibit weakly negative effects in one specification, probably hinting at allocational problems of command economies' investment decisions.

When the Soviet Union is excluded from the analysis (specifications 19-24 in Table 5 of the Appendix), the change in the relative fuel trade balance also demonstrates a weakly significant positive impact on growth in addition to the strong influence of grain production. This suggests that the dependency on Soviet fuel increasingly hampered economic growth, a burden that could only be mitigated through higher grain production and larger net food exports. Several poor harvests, which were caused by heatwaves during an otherwise cooler period, posed significant challenges to economic growth. Coupled with rising oil prices, these factors contributed to a sharp increase in the relative external debt levels of most Eastern Bloc countries.

4. Descriptive overview based on the new wiiw COMECON Dataset

Heading into the 1980s, it was clear that many COMECON economies were facing challenges, but the situation was not all bad. Between 1950 and 1979, Yugoslavia and Bulgaria had been two of the fastest-growing economies in the world (Vonyó and Markevich 2021). However, for the countries with a longer data series, there was clearly a growth slowdown starting at around this point, if not earlier (Figure 2). The two countries with the longest time series (i.e. Hungary and Yugoslavia) both show a clear slowdown from the late 1970s. In the case of Romania, the slowdown started earlier, albeit from a higher level. For the other countries, no comparable data are available before 1980, but it is notable that Polish growth was strongly negative at the start of the 1980s before returning to positive territory beginning in 1984. It is also notable that there was no apparent slowdown in growth following the first oil shock, in 1973, unlike in Western Europe (see below). It is highly likely that this reflects the phased adjustment of oil prices undertaken by the USSR (as discussed in greater detail below).

Figure 2 / Real GDP growth, % per year

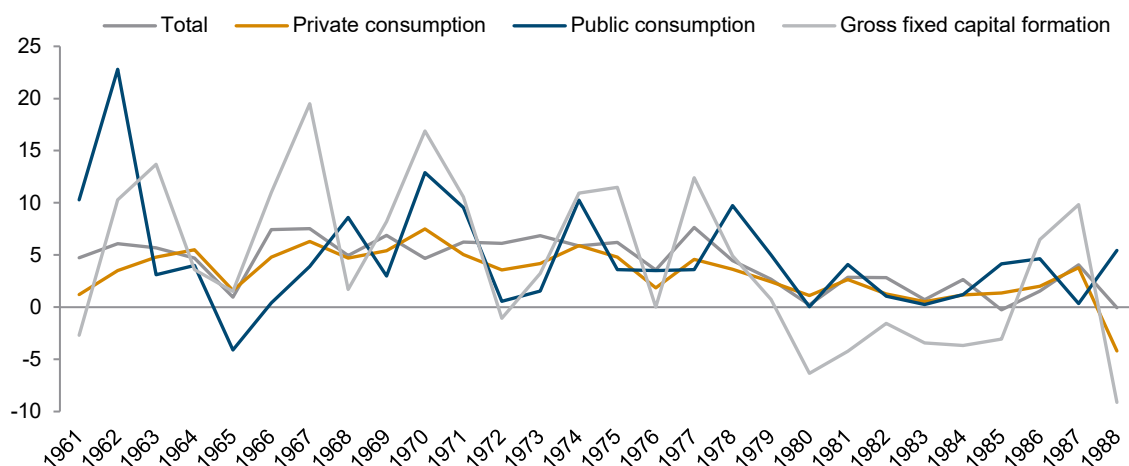


Source: wiiw COMECON Dataset

Since more detailed national accounts data are patchy, a full comparative overview is not possible. However, the data that do exist give some clues as to why the slowdown occurred. The only country with a GDP by expenditure and production breakdown for a longer period is Hungary. Here, for expenditure, the data clearly show that all components of GDP grew more slowly during the 1980s than in the prior period, but that by far the sharpest drop was recorded in investment (Figure 3). This is consistent with the estimates of Vonyó (2017), who computed investment rates as a share of GDP for the COMECON countries between 1950 and 1989. Real investment growth was negative in every single year between 1980 and 1985. Meanwhile, for GDP by production in Hungary, there was a slowdown across almost all

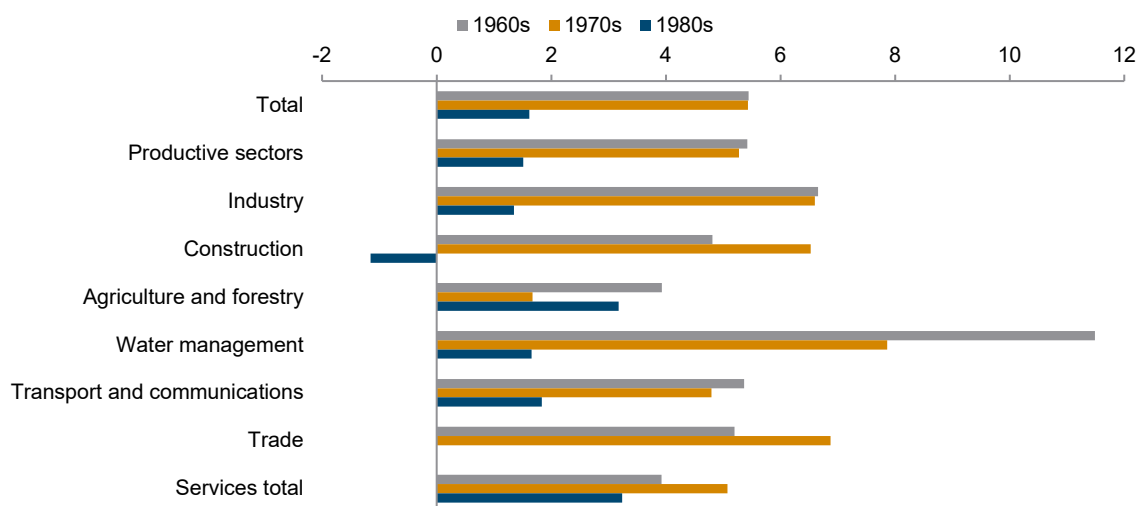
major sectors of the economy (Figure 4), with the decline for industry perhaps being particularly notable. The sharp decline in construction is consistent with the drop in gross fixed capital formation in Figure 2. The only exception was agriculture and forestry, where production increased in real terms. It is also noticeable that the rate of growth of services declined much less steeply than it did for other sectors and the economy as a whole.

Figure 3 / Hungarian real GDP by expenditure, % change year on year



Source: wiiw COMECON Dataset

Figure 4 / Hungarian real GDP by production, % change year on year, decade averages

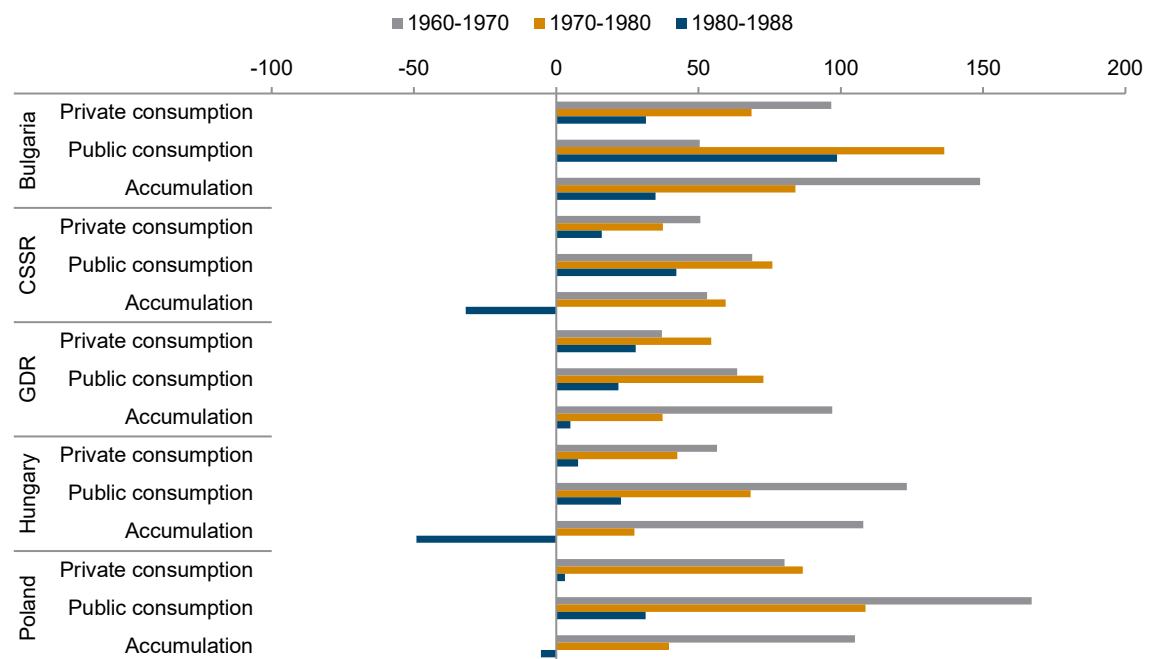


Source: wiiw COMECON Dataset

Looking at the national income by expenditure approach data (according to which national income consists of public consumption, private consumption and accumulation), we get a good breakdown of most COMECON countries from the 1960s onwards. The broad story is that real growth was very strong in the 1960s across the main expenditure components, remained robust (although it was already slowing in many places) during the 1970s, and then slowed or even turned negative between 1980 and 1988

(Figure 5). Nevertheless, there are major country and component differences. First, public consumption growth in Bulgaria, the CSSR and the GDR accelerated in the 1970s versus the 1960s. Second, in the GDR and Poland, private consumption growth was stronger in the 1970s than in the 1960s. These two results indicate that this was not a simple story of gradually declining growth starting in the 1970s. The third major result, however, is that accumulation growth (i.e. a combination of investment and stock accumulation) slowed consistently across the time periods and in all countries. In the CSSR, Hungary and Poland, it even turned negative in the 1980s. This is consistent with Hungarian data and other findings from the already referenced literature, and it supports the view that the real driver of relative economic decline for COMECON countries in the 1980s was a lack of investment. Of course, there may be more than one reason for this, but it is highly likely that the sharp increase in global interest rates led by the US beginning in 1979 was a major factor. For the USSR, in real terms, only total consumption and investment combined are available. Here, the trend is consistent with the broad story of the region over this period.

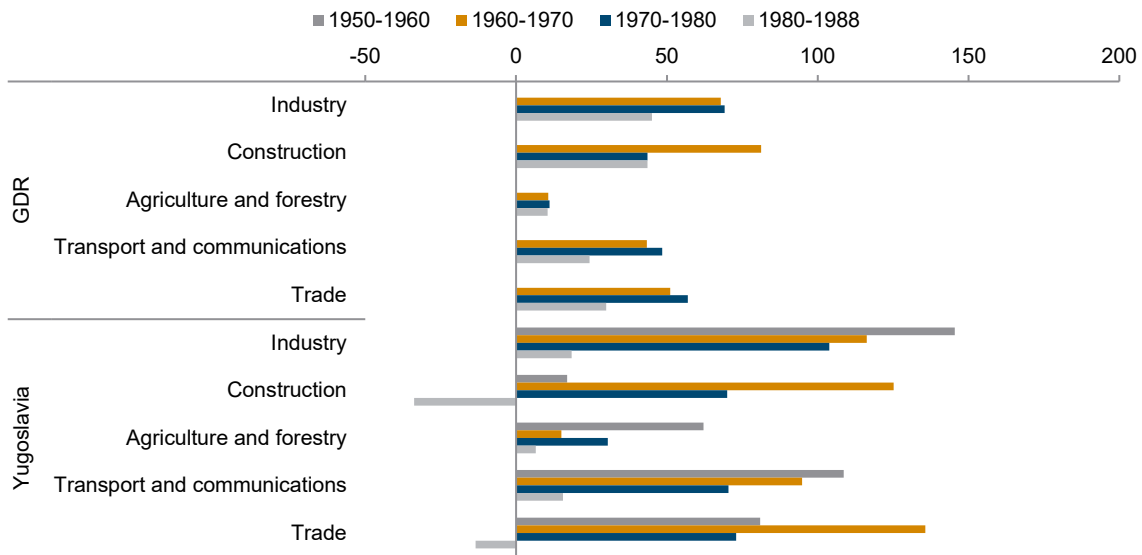
Figure 5 / National income by expenditure approach, real, % change



Source: wiiw COMECON Dataset

For the national income by production approach, real data broken down by sector exist for Yugoslavia from the late 1940s and for the GDR from 1960. Broadly, these data confirm the pattern already outlined: there was a slowdown already in the 1970s, which intensified in the 1980s, and it was led above all by investment-related sectors, such as construction and industry. However, using the examples of Yugoslavia and the GDR again emphasises the difference between countries (Figure 6). Whereas construction output (and, indeed, trade) was negative between 1980 and 1988 in Yugoslavia, it continued to grow (by almost 44%) over this period in the GDR.

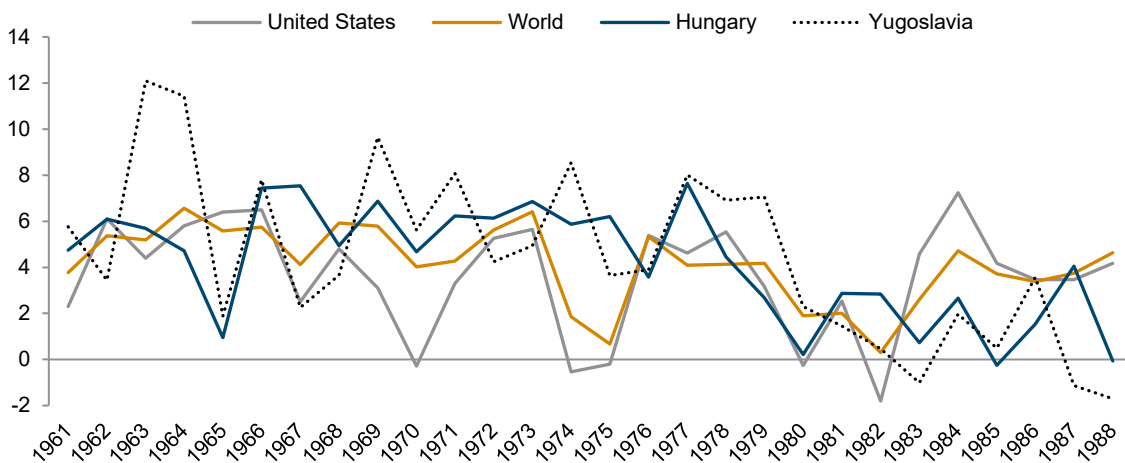
Figure 6 / National income by production approach, real, % change



Source: wiiw COMECON Dataset

Comparing the COMECON countries with Western Europe, it is also evident that the slowdown following the oil shocks of the 1970s and the Volcker interest rate rise did not arrive at the same time. Until the early 1980s, the communist countries for which a long time series is available (i.e. Hungary and Yugoslavia) mostly outperformed the US and the global economies (Figure 7). There are at least three possible explanations for this initial outperformance. First, there was something about the way in which CESEE navigated the 1970s that created the problems of the 1980s. Second, some elements of the COMECON system initially cushioned the blow of the 1970s shocks, but other (economic and/or political) elements prevented the adaption and therefore recovery achieved by the West during the 1980s. Third, the policy decisions of the 1970s were good, but the policy decisions of the 1980s were bad. Each of these will be examined in the rest of the paper.

Figure 7 / Real GDP growth, % per year



Source: wiiw COMECON Dataset

In the following three sections, we assess three hypotheses regarding the failures of the 1980s and the collapse of socialism. To frame this discussion, we draw on Berliner's (2001) metaphor of the racing track (the international environment), the horse (the command economy), and the jockey (the policy makers). Although we adopt Berliner's analogy, our focus differs in key areas, particularly in examining the international environment and policy decisions. Moreover, we use a contemporary analytical framework and new data compiled for this project, which allow us to shed some new light on these matters.

5. Hypothesis 1: The racing track (the international environment)

We elaborate four hypotheses as to how the international environment contributed to the collapse.

The period between the end of the Second World War and the mid-1970s was a time of significant change in the global economy when many things were moving. But *Les Trente Glorieuses* in Western Europe ended in the mid-1970s with the oil shocks, which saw growth rates there slow down, as well. The collapse in aggregate demand caused a cyclical decrease in capacity utilisation, which was reflected in declining efficiency. This was to a large extent influenced by a major increase in labour unrest associated with the fall (or at least stagnation) in living standards due to severe austerity measures. The growth model in the Soviet Union had become ever more reliant on oil revenues, which were used to pay for technology and agricultural imports (with the former driving whatever industrial development was possible) and to raise per capita income. However, from 1983 onwards, the value of oil exports started to decline. This meant that there were fewer funds for new investment and extraction, meaning less production and exports, meaning even fewer funds, which perpetuated all these problems (Gaidar 2002).

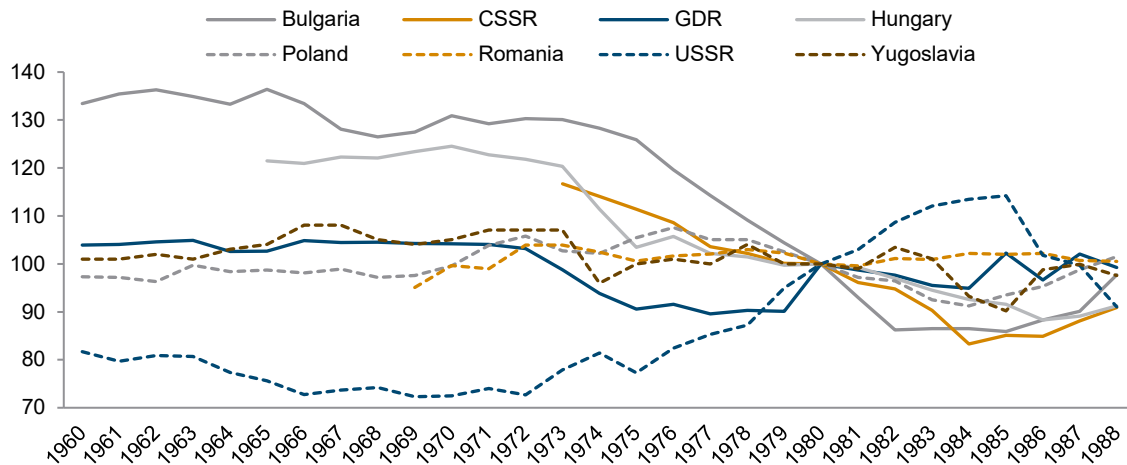
5.1. OIL PRICE SHOCKS OF THE 1970S

The 1979 oil shock and the subsequent increase in global interest rates triggered balance of payment crises in Eastern Europe, which in turn were followed by severe austerity measures and the related collapse in aggregate demand.

One can argue that the sharp decline of investment from 1980 was due to exogenous supply shocks. Oil shocks made industries uncompetitive, and high interest rates in the West made it hard to finance the external debt overhang of the 1970s. The 1970s borrowing had been to finance higher investment. To deal with the oil shocks, they had to limit imports and impose austerity in order to avoid a balance-of-payments crisis. This reduced capacity utilisation and therefore investment.

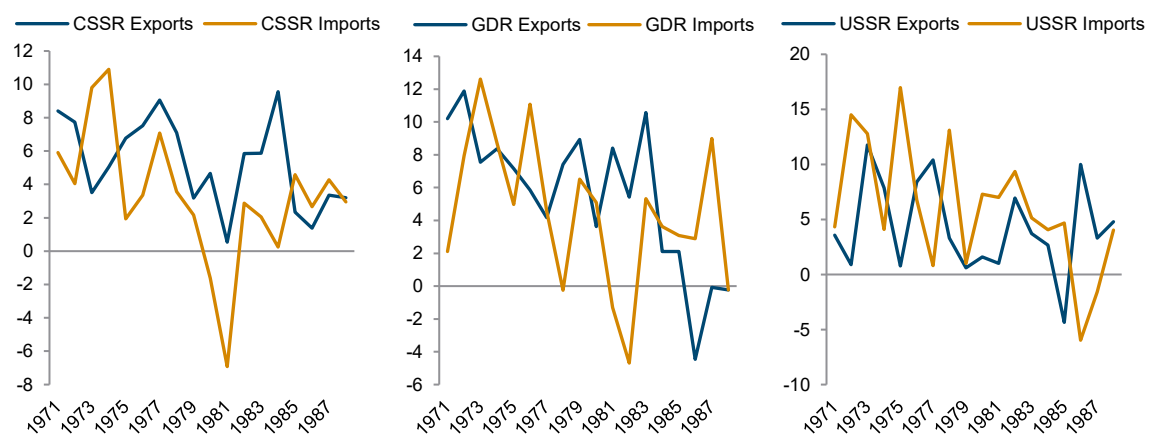
The first oil price shock of 1973/1974 was a problem because it prompted the Soviet Union to change its policy on pricing. Until then, the Soviet Union had sold oil to COMECON countries at prices that were fixed for five years and normally well below market prices. Soon after the oil shock, in 1975, it changed this to make it a five-year moving average of the global price and started adjusting the price every year. As a result of the moving average, the shock for the COMECON economies was longer, lasting until the 1980s.

The terms of trade shock was by no means uniform (Figure 8). Things naturally improved for the USSR, but the differences for the rest of the COMECON countries were big. Whereas Romania and Yugoslavia held up much better, Bulgaria and the CSSR did not. And while some may indeed have suffered a terms of trade shock on a scale that made any kind of policy intervention difficult (e.g. in Bulgaria and the CSSR), others did not – and therefore the end of communism cannot be blamed on this factor.

Figure 8 / Terms of trade, world, 1980=100

Source: wiiw COMECON Dataset

Three COMECON economies have real trade data covering the 1970s and 1980s: the USSR, the CSSR and the GDR. This gives us a chance to compare the impact on trade that the oil shocks had on oil exporters and importers. Based on these data, it is very hard to make the case that the oil shocks delivered such a blow to the trade balances of the COMECON countries that it hastened the end of communism (Figure 9). In both the CSSR and the GDR, real export growth actually increased during the late 1970s and early 1980s despite the fact that they were oil importers. In both countries, real exports were growing much faster than real imports (which unsurprisingly fell given higher prices). In the USSR, the opposite was the case, presumably because higher prices for its oil exports caused a reduction in demand (the flipside of lower import volumes in the CSSR and the GDR). What is striking here is the sharp decline in real exports by the CSSR and the GDR from the mid-1980s, or roughly a decade after the first oil price shock. This could be consistent with the idea that since the Soviet Union only gradually adjusted oil prices after the oil price shocks, the full impact on export competitiveness was only felt with a lag in the other COMECON countries.

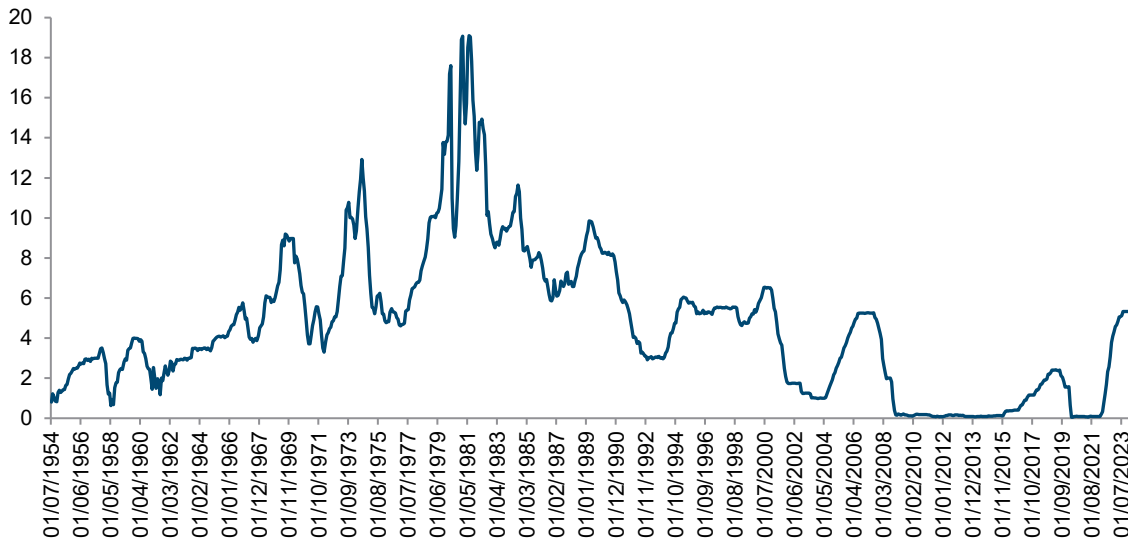
Figure 9 / Merchandise trade, real, % change year on year

Source: wiiw COMECON Dataset

5.2. THE VOLCKER INTEREST RATE SHOCK AND WESTERN RECESSIONS

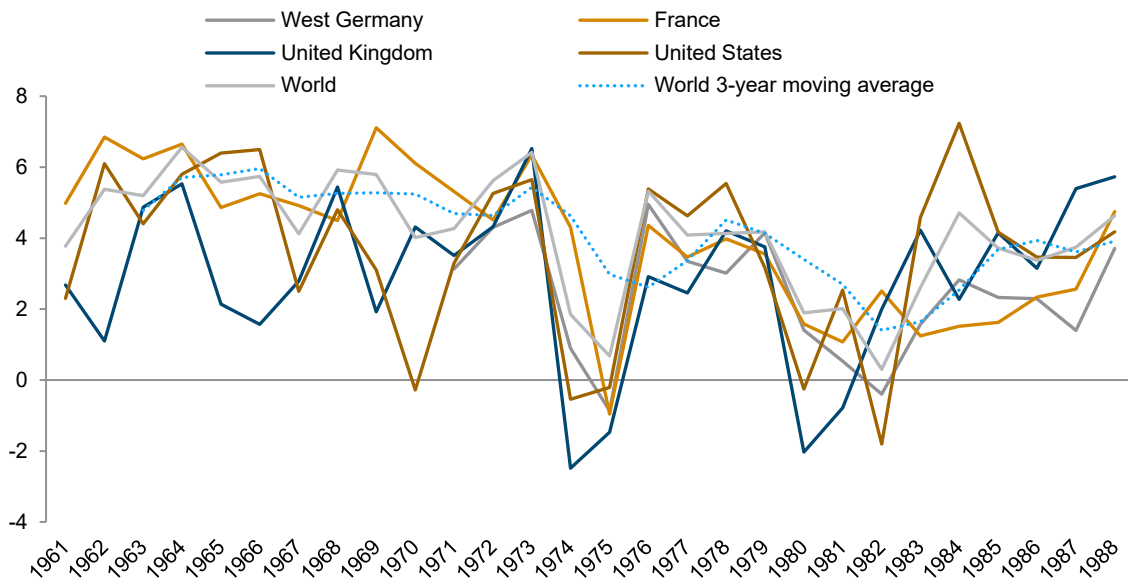
In response to the inflationary surge in the US of the 1970s, the US Fed carried out the most significant monetary tightening of the post-war era between 1977 and 1981 (Figure 10).

Figure 10 / Federal funds effective rate, %



Source: Board of Governors of the Federal Reserve System

Figure 11 / Real GDP growth, % per year

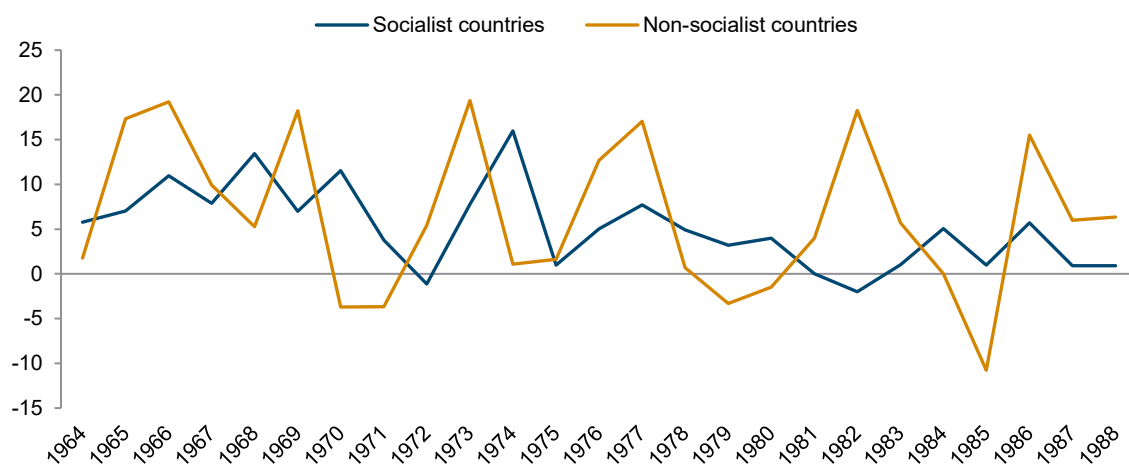


Source: World Bank

There was evidently a very sharp slowdown in the global and major Western economies after the two main oil shocks of 1973 and 1979 and the interest rate hikes made by then Fed Chairman Paul Volcker (Figure 11). Taking the 1960s, 1970s and 1980s together, there was a gradual slowdown in the rate of economic growth in the global and major Western economies lasting until the mid-1980s, at which point the situation improved again. This is broadly consistent with the downturns in COMECON exports shown in Figure 9 and indicates that weaker external demand, as well as a decline in 'competitiveness', could have played a role in the decline in COMECON exports during this period.

Some data are available showing the change in exports to socialist versus non-socialist or world exports. These data give a better idea of how important this slowdown in Western markets was relative to other factors when it comes to explaining weaker COMECON export performance in the late 1970s and 1980s. For the USSR, real export data for this period show two things. First, exports to non-socialist countries were much more volatile than those to other socialist countries (Figure 12). Second, the strongest change from the mid-1970s was the decline in sales to the socialist countries rather than to the non-socialist countries. Granted, exports to non-socialist countries did record negative growth in 1979/1980 and again in 1985, but there were also years of very strong growth (i.e. 1977, 1982 and 1986). By contrast, exports to other socialist countries grew at very meagre rates from the late 1970s onwards compared to the growth rates for most of the 1960s and the first half of the 1970s. This implies that, at least for the USSR, the weaker export growth was not primarily a result of the slowdown in Western Europe.

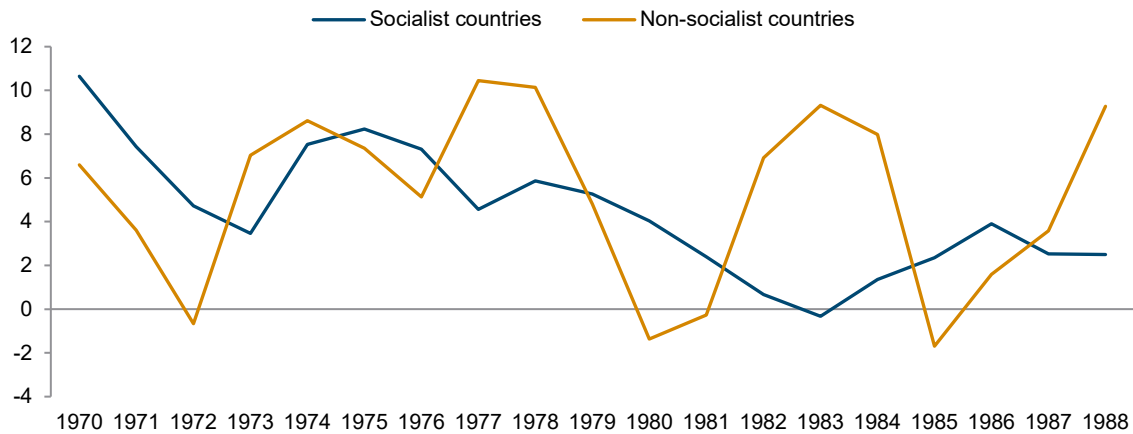
Figure 12 / USSR real exports, % change year on year



Source: wiiw COMECON Dataset

The second useful granular breakdown that is available is for the USSR in nominal dollar terms (Figure 13). Here, the case can be made more strongly that the slowdown in Western markets had an impact. Especially in 1974, 1975 and 1980, exports to other socialist countries and especially to the USSR performed much more strongly than those to the world as a whole, implying significant weakness in Western markets.

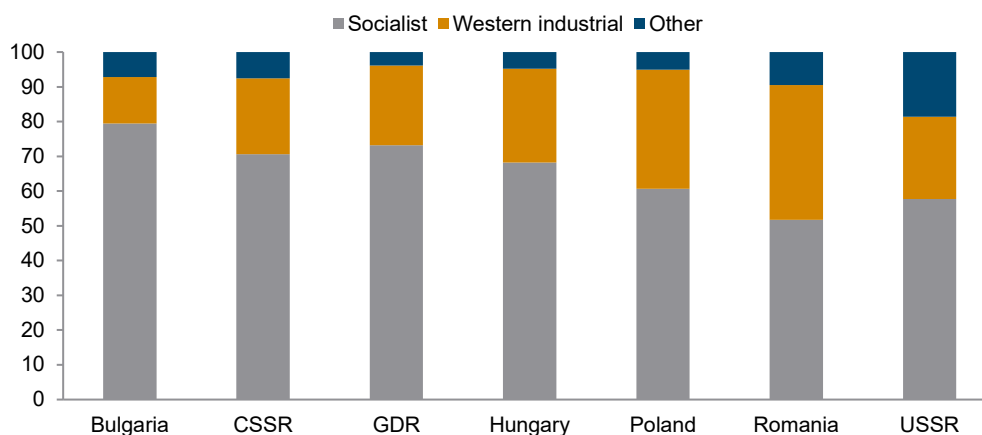
Figure 13 / USSR exports in nominal USD, % change year on year



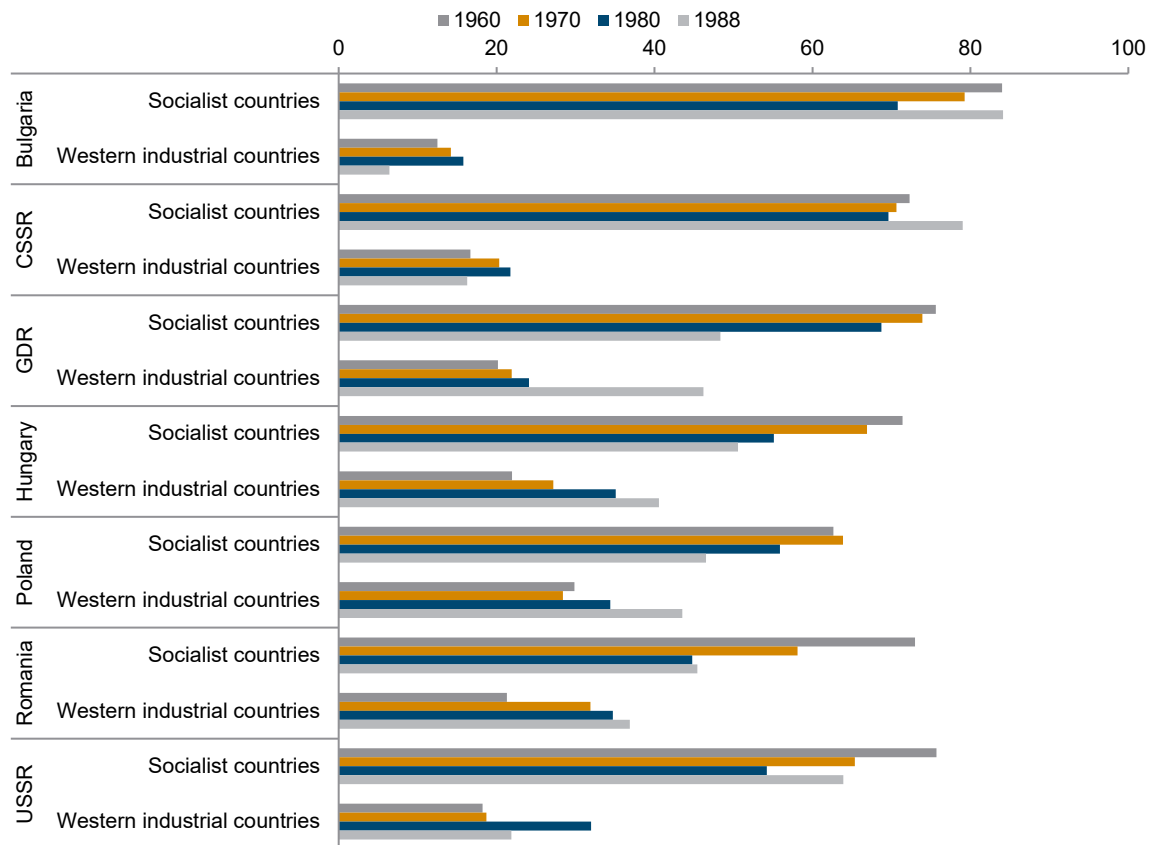
Source: wiiw COMECON Dataset

One other factor that needs to be taken into account – and which also somewhat undermines the thesis that the slowdown in Western economies was responsible for the difficulties faced by COMECON economies in the 1980s – is the relative shares of partners in COMECON exports. In 1973 (i.e. the year of the first oil shock), exports to socialist economies made up more than 50% of the total in all COMECON economies for which a full breakdown of the data is available, ranging from 52% for Romania to 79% for Bulgaria (Figure 14). By contrast, exports to Western industrial economies ranged from 39% in Romania to just 13% in Bulgaria. However, over this period, despite the weaknesses of many Western economies as well, the share of exports going to the West from COMECON countries rose in all economies for which data are available between 1960 and 1980 (Figure 15). Especially in Hungary, Poland and Romania, the shares of exports going to the West were not much lower than those going to other COMECON economies by the 1980s. Thus, it may be said that, for these countries, increased integration with the West came at just the wrong time (i.e. as the West itself was slowing). But it is nevertheless hard to make the case here that the Western recessions really made a strong contribution to the end of communism in CESEE.

Figure 14 / Nominal exports by trading partner, 1973, % of total



Source: wiiw COMECON Dataset

Figure 15 / Nominal exports by trading partner, % of total

Source: wiiw COMECON Dataset

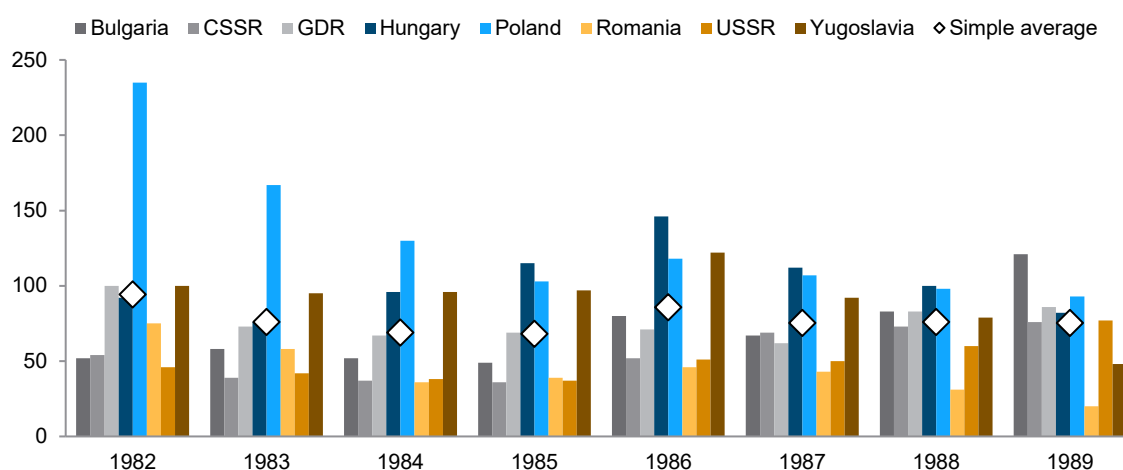
5.3. THE VOLCKER INTEREST RATE SHOCK AND THE SHARP RISE IN DEBT SERVICE COSTS

The Volcker interest rate shock affected the socialist countries in another way, namely, through the sharp increase in their debt service costs, which rose significantly during late 1970s and 1980s. According to Schmidt (1985), during the 1970s, the socialist countries could borrow at annual interest rates of around 6%. However, by 1981, the interest rates they were paying rose to 19% per annum. The interest rate increases were made more serious by the fact that these countries had primarily short-term debt which needed to be refinanced frequently. This, in turn, meant that they were very exposed to sudden and sharp interest rate fluctuations.

According to Schmidt (1985), an additional problem was the depreciation of the US dollar in the 1970s. A considerable portion of ex-socialist countries' debts were denominated in currencies other than the US dollar, such as German marks, French francs and Swiss francs, while their exports were mainly denominated in dollars. Owing to the depreciation of the dollar during this period, the relative value of their exports declined, while the relative value of their debt service costs increased. This inflated their debt burden because they needed more US dollars to repay loans denominated in other (stronger) currencies (e.g. the German mark).

These problems, together with the relatively low convertible exports (i.e. exports that were paid for in convertible hard currencies that the countries could use for repaying their debt), led to very high debt service ratios in all the ex-socialist countries in the 1980s, particularly in Poland, Hungary and Yugoslavia. In these three countries, annual debt service ratios in the 1980s were close to or even exceeded the value of all annual convertible exports (Figure 16).

Figure 16 / Debt service ratio, % of convertible exports



Source: wiiw COMECON Dataset

5.4. US MILITARY SPENDING

In 1983, the US government led by President Reagan announced the Strategic Defence Initiative (SDI), also known as the 'Star Wars' programme. Reagan wanted to move beyond the doctrine of mutually assured destruction in an effort to render nuclear weapons obsolete. The impact was significantly higher defence spending, which put pressure on the Soviet Union to increase its own defence spending, leading to a surge in defence spending in 1985 at the expense of other things. Firth and Noren (1998) found that Soviet defence spending increased by several percentage points of GDP in the second half of the 1980s. However, it has not been definitively established in the literature that this was a problem for the Soviet Union *per se*. Smith (2009) found no clear relationship between military spending and economic growth rates. Moreover, it may be that the Soviet leaders had their own reasons for exaggerating defence spending. As Vitaly Katayev, deputy head of the Defense Industry Department of the Soviet Central Committee until 1993, put it in his papers (cited by Harrison 2008): 'The propagation of myths about large outlays of the USSR's budget on military purposes and the 'cold war' was advantageous to the USSR's leaders since it provided a justification (based on 'huge' military outlays) of the low standard of living of people in the USSR.' Thus, the idea that increased US spending helped to bring down the Soviet Union – and, by extension, all of the COMECON countries – appears quite thin.

6. Hypothesis 2: The horse (command system)

There are at least three possible hypotheses as to how the command system itself contributed to the collapse.

Many attempts at reform, most of which didn't work

There were many serious attempts at reform before the 1980s, but they generally had little impact and were mostly abandoned by 1970. So perhaps the system wasn't reformable after all.

State socialism emerged after the Second World War in an environment where the state played a bigger role in the economy in any case (Eichengreen 2007). Across the world, there was a high share of public spending in GDP, nationalised industry and industrial policy. However, the governments of the COMECON countries took things a step further owing to two factors: the greater degree of destruction they had suffered during the war as well as Marxist ideology.

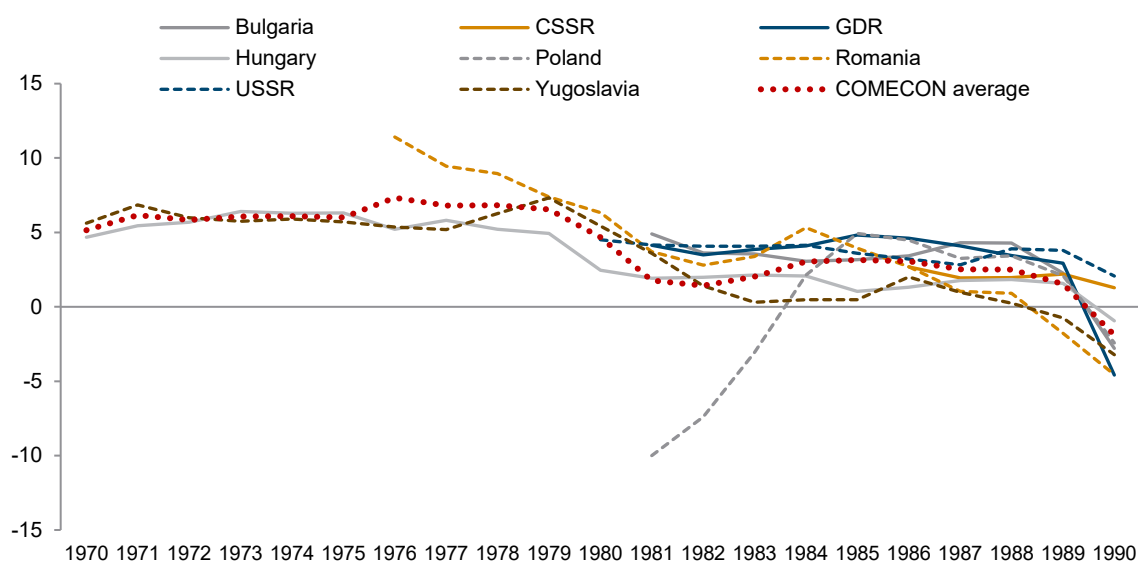
Especially after Stalin died in 1953, there were some policy changes that tried to increase the role of incentives in the economy and market competition (Sutela 1991; Berend 1997). Higher priority was given to sectors producing consumer goods and services to lift living standards, with a relative shift away from heavy industry (Markevich and Vonyó 2021).

One example was the Kosygin reform launched in the USSR in 1965. Some profits could be retained by firms and used for capital investments and 'incentive funds' (i.e. bonuses) for managers. More ambitious versions of the Kosygin reform were launched across the COMECON countries beginning in the late 1960s. Quasi-market prices were introduced in several sectors, and managers of state enterprises were expected to maximise profits and given autonomy to allocate resources, investment and labour. By the late 1960s, roughly half of investments were financed by firm profits (*ibid.*).

However, these reforms ultimately proved fruitless in terms of fundamentally changing how economies worked and driving higher economic development (Vonyó and Markevich 2021). Firms' economic interactions were still based on state plans rather than supply and demand, and soft budget constraints remained (Markevich and Vonyó 2021). In addition, there were still weak incentives for innovation (Kornai 1992) as well as some sabotage from industrial ministries opposed to decentralising resource allocation and planning (Schroeder 1973). Gaidar (2002) sees Yugoslavia in 1953 and Hungary in 1957 as the only examples of successful reform among the CESEE countries and, in both cases, he attributes this to that fact that socialist industrialisation had not been completed yet, which meant that labour resources were still available in agriculture. As a result of these factors – and especially owing to the experience of Czechoslovakia, where reforms led to political destabilisation in the late 1960s – the Central Committee of the Communist Party of the Soviet Union decided to abandon the idea of serious reforms towards the end of the 1960s (Gaidar 2002).

Although Hungary and Yugoslavia did continue to reform after that, there is no strong evidence that this had a positive economic impact. In fact, if anything, these two did worse than the other COMECON countries in the 1970s and 1980s (Figure 17). There is therefore little evidence that these reforms created more growth, productivity or structural economic change, although services did become more important for Hungary and Yugoslavia starting in the 1970s (Markevich and Vonyó 2021). In addition, many of the reforms were incomplete and lacked a more holistic approach. Disregarding crucial interventions in incentive structures often created opportunities for individuals to exploit the system. One possibility for the poor performance of the reforming economies in the region could have been that the party apparatus in the more centrally planned economies was closer to simulating a market price system via brute political control than the half-hearted attempts to liberalise individual sectors.

Figure 17 / Real GDP growth per year, %



Source: wiiw COMECON Dataset

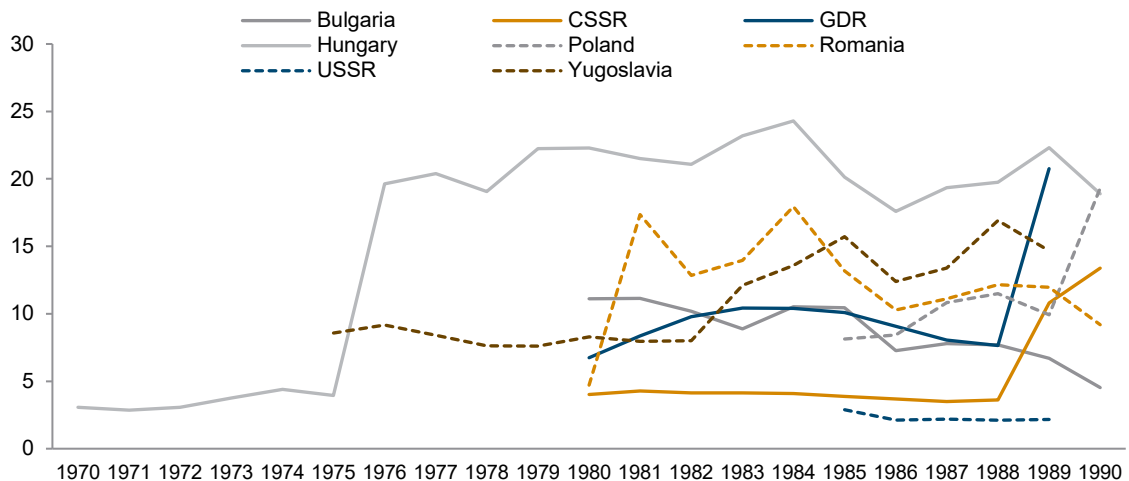
6.1. LOW CONVERTIBLE EXPORTS

The main reason why the ex-socialist countries were severely impacted by the difficult international environment of the late 1970s and early 1980s – and particularly by rising interest rates – was their limited capacity to generate convertible exports (i.e. exports in currencies that could be used to service external debts). Only Hungary had convertible exports exceeding 20% of GDP during this period, while all the other COMECON countries were below that level (Figure 18). Hungary was also the only country in the region that was able to consistently improve its food trade balance between the early 1970s and the late 1980s.

As a result of their low convertible export revenues, these countries faced mounting challenges in servicing their external debt despite their relatively low debt-to-GDP ratios. Hungary was the only country that had a somewhat high level of external debt, which stood at approximately 40% of GDP in the late 1970s and rose to 75% by the 1980s. But even this level would be considered modest by today's standards. Poland's external debt surpassed 60% by the mid-1980s, Yugoslavia saw its debt

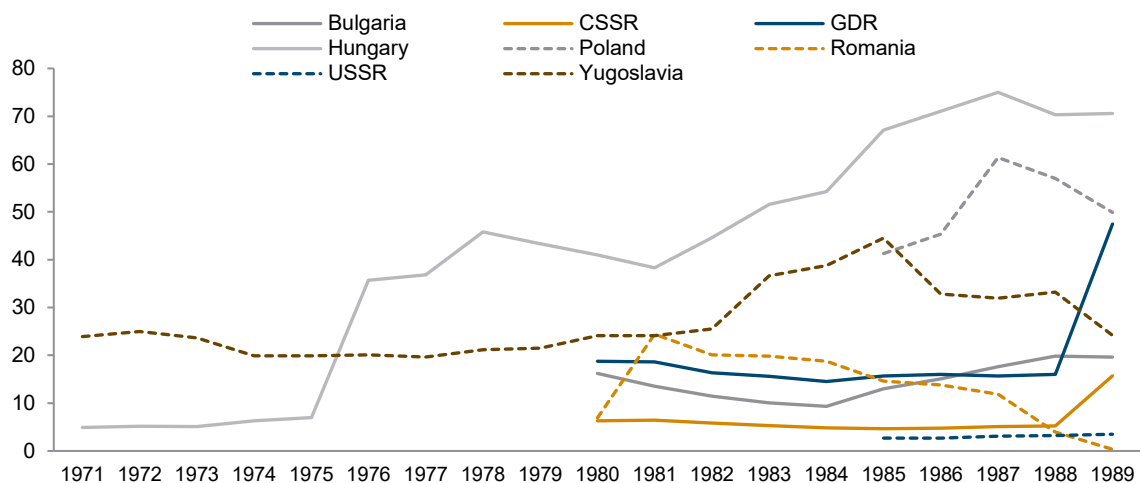
increase from 25% to 45% during the same decade, and all the other countries maintained external debt levels of around or below 20% of GDP during the 1980s (Figure 19).

Figure 18 / Convertible exports, % GDP



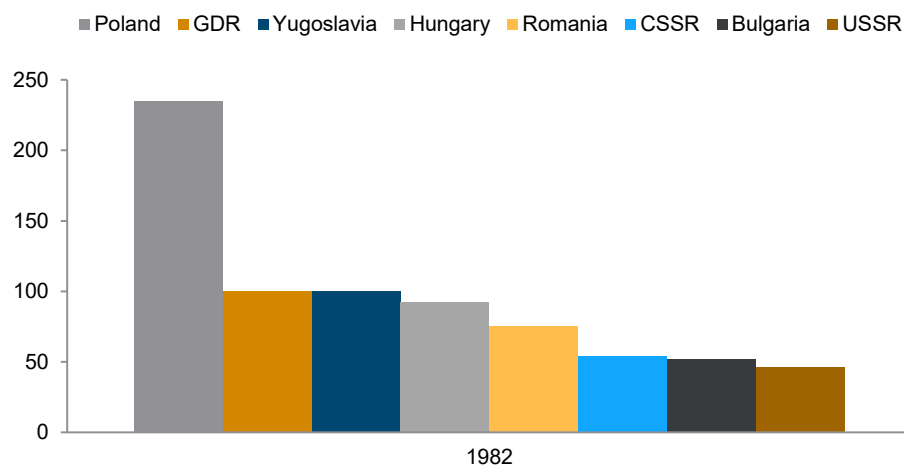
Source: wiiw COMECON Dataset; own calculations

Figure 19 / External debt, % of GDP



Source: wiiw COMECON Dataset; own calculations

Nevertheless, despite these seemingly moderate levels of debt, the lack of sufficient convertible currency inflows created severe debt-servicing problems for these countries. In 1982, Poland's debt service ratio was twice as high as its annual exports. Similarly, the GDR, Yugoslavia and Hungary saw their debt service ratios approach the value of their entire annual exports. Even the USSR, with the lowest debt service ratio among the group, still devoted nearly half of its annual exports to servicing its foreign debt (Figure 20).

Figure 20 / Debt service ratio in 1982, % of convertible exports

Source: wiiw COMECON Dataset

The root of this problem lay in the countries' low competitiveness and technological backwardness, which resulted in the production of outdated, low-quality goods that were not competitive in Western markets. Additionally, political factors played a significant role in their economic isolation. Fearful that opening up to the West would invite capitalism into their socialist economies, these countries maintained restrictive trade policies and limited integration with Western markets. This isolation stifled opportunities for economic modernisation and technological advancement.

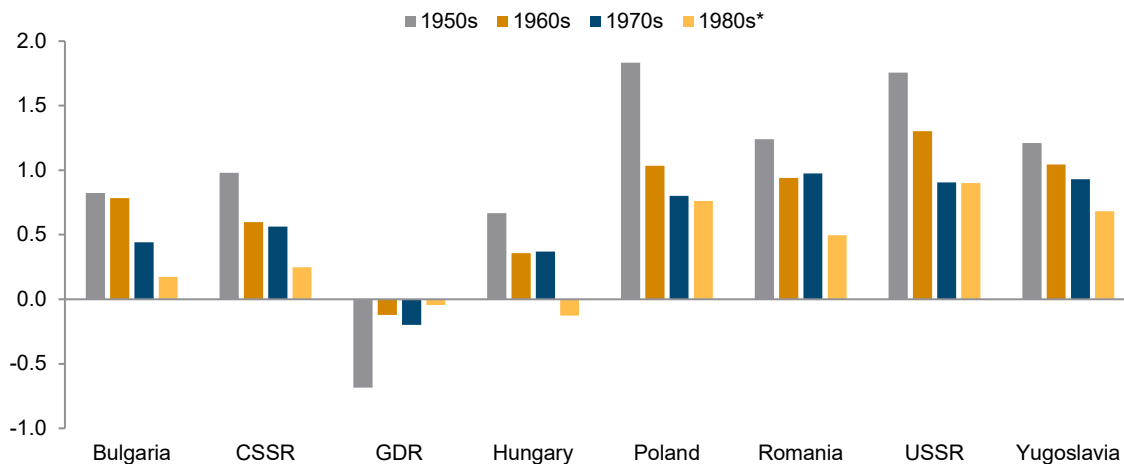
6.2. POPULATION DECLINE CAUSED BY LOW BIRTHRATES AND/OR EMIGRATION

Another feature of the system is that its restrictions (political, economic and otherwise) encouraged people to emigrate, which had a negative impact on the labour supply and growth.

Headline population data (Figure 21) do not suggest any significant change in dynamics during the 1980s for the COMECON states as a whole. In many places, the rate of change in the population was slowing, but it was still positive everywhere except in Hungary and the GDR (i.e. the two countries from which people were finding ways to leave even before the Berlin Wall came down). In the USSR, Poland and the GDR, population change in the 1980s was similar to that in the 1970s. It is true, however, that it did drop off significantly in Bulgaria, the CSSR, Hungary and Romania. Therefore, the data are consistent with the hypothesis that population change (and its contribution to labour shortages) may have been a factor accelerating the collapse of communism in some countries of the region.

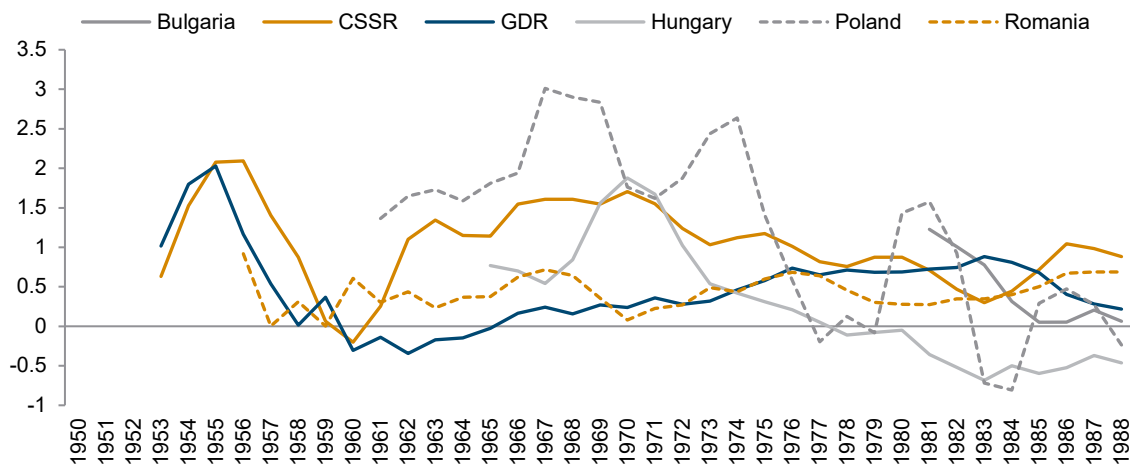
Further support for the thesis that labour shortages hastened the end of communism comes from data on the labour force. The growth rate in the economically active population experienced a general decline starting in the 1970s (Figure 22) or, in the case of Hungary, even at the start of the 1970s. In both Hungary and Poland, the economically active population was declining at times during the late 1970s and 1980s. While the GDR actually saw the growth rate of the economically active population increase during the second half of the 1970s, it also peaked and then trended downwards starting in the mid-1980s.

Figure 21 / Resident population, % change per year, decade averages



Note: 1989 excluded from the 1980s average.
Source: wiiw COMECON Dataset

Figure 22 / Economically active population, % change per year, 3-year moving average



Source: wiiw COMECON Dataset

7. Hypothesis 3: The jockey (policy mistakes)

There are a number of possible hypotheses as to how policy failures contributed to the collapse.

7.1. GENERAL RIGIDITY AND UNWILLINGNESS/INABILITY TO REFORM MORE FUNDAMENTALLY, INCREASING INCENTIVES, SUPPLY/DEMAND, ETC.

In the case of the USSR, Allen (2003) identifies long-term policy mistakes, a misallocation of resources, and a slow-burn decline over decades leading up to the collapse at the end of the 1980s. Meanwhile, Banerjee and Spagat (1991) concluded that planning mistakes became more likely as economies became more complex. This became more costly for the non-Soviet economies after the oil shocks of the 1970s. However, according to Gaidar (2002), the collapse of socialism then followed because of an instability-inducing conflict of interest among the ruling elite as it became clear that maintaining stability would be impossible under the economic conditions of the 1970s and 1980s in a system that had been formed much earlier. Gaidar (2002) also argued that, by the mid-1980s, when Gorbachev came to power as general secretary of the Communist Party of the Soviet Union, there was nothing much more that policy could do. The only things that could have saved the Soviet Union were higher oil prices or a way to issue debt more cheaply. While he is critical of Gorbachev and Prime Minister Nikolai Ryzhkov for the economic decisions they took during perestroika, he finds that these did not change the scale or nature of the 'inevitable' crisis. However, this relates very much to the comments above on the centrally planned systems' inability to reform.

7.2. UNDERINVESTMENT FOR TOO LONG

The post-war golden age of growth was driven by a shift of occupation from agriculture to more productive industry and services (Denison 1967; Kindleberger 1967). Industry was the main driver of growth (Kaldor 1966). Something like this also happened in CESEE over this period, as the share of agriculture in total labour declined sharply in the post-war decades. Although there was potential for a greater reallocation, it was not utilised (Vonyó and Markevich 2021). After the oil shocks, the structural change stopped and agriculture continued to account for a relatively high share of the economy.

Investment rates were lower in the East than in the West throughout the 1950s and 1960s (Vonyó and Markevich 2021). This changed somewhat in the 1970s and 1980s, but by then it was too late. Thus, the underinvestment of the previous decades probably contributed to the slowdown of the 1980s. However, the weak investment of the post-war years was not necessarily a purely policy decision, as it was also at least partly because of the demographic shock of the war (e.g. casualties, displacement and migration), which caused labour shortages and therefore meant that the countries did not need huge investments.

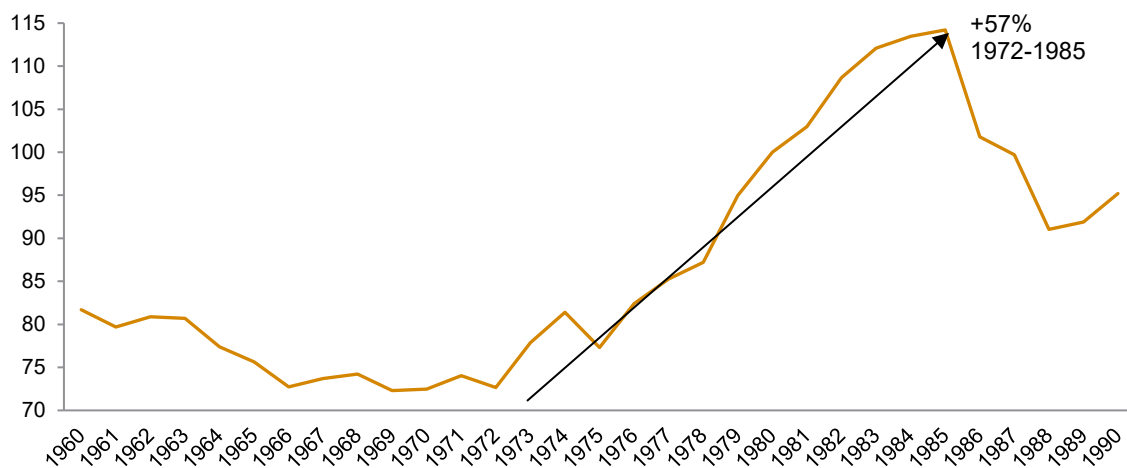
7.3. WRONG POLICY RESPONSE TO THE OIL SHOCKS

The policies undertaken in response to the oil shocks potentially exacerbated the already difficult situation and contributed to the collapse of communism in the following decade. The need to boost exports and get hard currency to pay for more expensive oil meant funnelling resources to sectors with the best export potential in the short term, such as low-productivity agriculture and food products. At least in the CSSR and the GDR, this seems to have had good results in terms of real export volumes (Figure 9), though not necessarily in terms of long-term growth. Moreover, to preserve hard currency, many COMECON countries limited the imports of advanced Western technology (also consistent with Figure 9), which meant missing out on greater productivity upgrading.

For the Soviet Union, the oil shocks were a windfall. In the years between 1972 and 1985, the USSR saw a substantial and consistent improvement in its terms of trade (Figure 23). Going from this to a collapse in the system in just a few years *must* indicate some policy errors. Brezhnev ‘gambled’ on an oil-based economic growth model (Gaidar 2002), which left the Soviet Union exposed to swings in the global economy and global oil prices. Therefore, when the terms of trade sharply declined again during the second half of the 1980s, the USSR was badly exposed.

Additionally, most of the time, the Soviet Union had the means to continue subsidising its satellites in CESEE. However, the Soviet leadership instead chose to abandon them in 1975 by introducing world market prices for oil. This worsened the economic situation in these countries and effectively served as a trigger (or at least a catalyst) for the dissolution of the COMECON bloc.

Figure 23 / USSR terms of trade, 1980=100

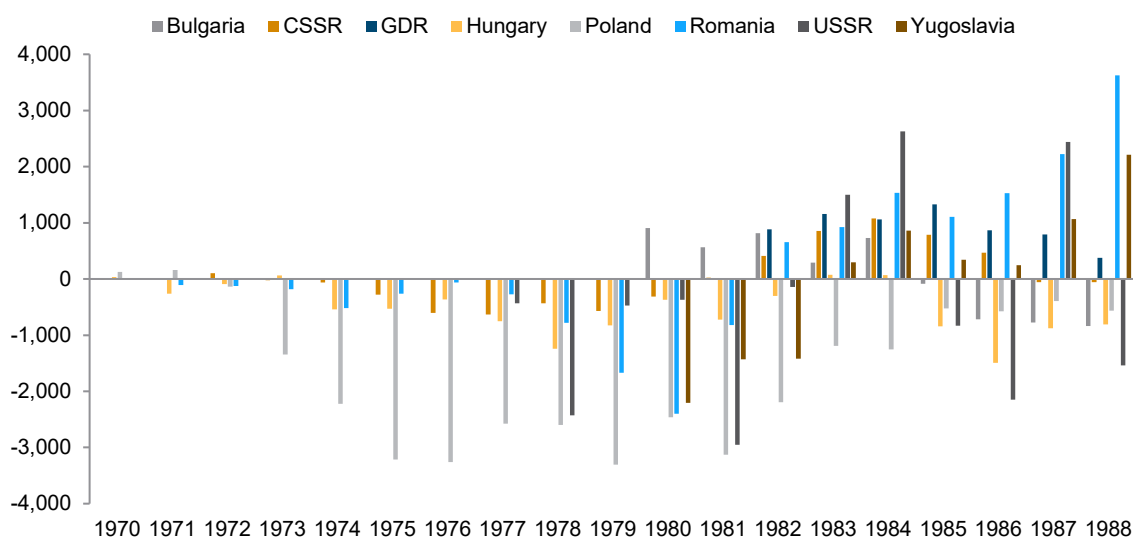


Source: wiiw COMECON Dataset

7.4. DEBT LEGACY

During the 1970s, an investment spree was financed by cheap international credit, which caused public debt to soar in a number of COMECON countries. Although the data are quite patchy, one can clearly see that the COMECON countries ran big current account deficits during the 1970s (Figure 24), and then came the quite painful external adjustment that the COMECON countries went through especially after the Volcker interest rate shock of 1979. This entailed austerity and a serious compression of consumption in many COMECON economies, which undermined the system for a large part of the population.

Figure 24 / Current account, USD million



Source: wiiw COMECON Dataset

The need to deal with the heavy debt burden was definitely a factor in this adjustment. Poland's default after the second oil shock led to extreme austerity and regular strikes, which in turn weakened manufacturing output. Romania had even more brutal austerity in order to avoid default. Czechoslovakia was able to avoid much of this and to keep investment relatively high during the 1980s because it didn't borrow as much in the 1970s. Hungary and Yugoslavia also avoided some of it because of their access to Western credit thanks to their IMF and World Bank membership.

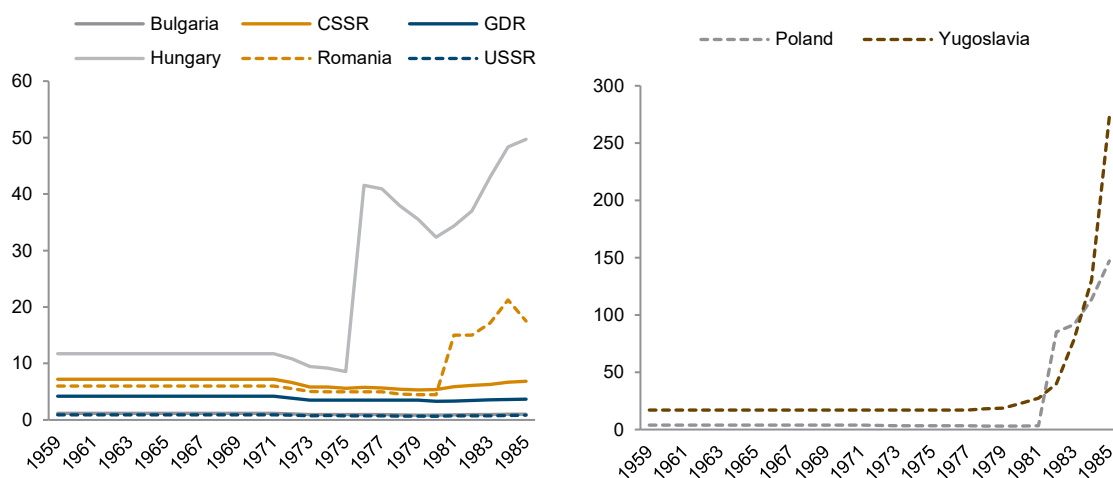
Due to a range of factors – including the collapse of the Bretton Woods system of global monetary management in the early 1970s, the subsequent liberalisation of international finance, the related build-up of trade imbalances, the oil price shocks, the Volcker interest rate hikes and (climate change-induced) crop failures – the CESEE debt crisis broke out in early 1980s. According to Fink and Mauler (1985), there was a series of debt rescheduling in Poland in each of the years between 1981 and 1985, Hungary had IMF programmes in 1982 and 1984, Romania had an IMF programme in 1981 and subsequent debt rescheduling in 1982 and 1983, and Yugoslavia had IMF programmes in 1980, 1981 and 1984 as well as debt rescheduling in 1983 and 1984.

Even the Soviet Union, with its oil revenues, ran into debt problems for several reasons. First, the debts it had issued abroad were mostly not being serviced by the 1980s. In 1984, the Soviet Union was only getting about 30% of what it should have been in principal and interest on the loans it had issued, and the burden of servicing its own debt had reached 'avalanche-like proportions' by the mid-1980s (Gaidar 2002: 29). However, data from the wiiw COMECON Dataset show quite a different story. Only for Hungary and Yugoslavia can the debt service ratio really be seen to have increased sharply during the 1980s, although debt service costs (relative to convertible exports) were indeed very high in all the countries, particularly in Poland, Hungary and Yugoslavia.

7.5. EXCHANGE RATE MISMANAGEMENT

Another problem was that many of the socialist countries devalued their currencies in the 1970s and 1980s. The Romanian leu was devalued threefold in 1981 – from 4.5 ROL per USD in 1980 to 15 ROL per USD in 1981. The Hungarian forint was devalued fivefold in 1976, from 8.6 HUF per USD in 1975 to 41.5 HUF per USD in 1976. The Yugoslav dinar was devalued more than fifteenfold between 1979 and 1985 – from 18.6 YUD per USD in 1979 to 273 YUD per USD in 1985. The Polish zloty was devalued more than twentyfold in 1982 – from 3.4 PLZ per USD in 1981 to 85 PLZ to USD in 1982 (Figure 25).²

Figure 25 / Nominal exchange rates, NCU per USD



Note: The data refer to the conversation factors for the exports.

Source: wiiw COMECON Dataset; own calculations

The rationale behind these devaluations was a desire to reduce the current account deficit in the hopes that the devaluations would stimulate exports and reduce imports. But this could not work in the socialist economies because the reasons for their low exports to Western countries were structural in nature rather than a consequence of high prices. Prices were low in the Eastern Bloc in any case, and the reasons for the low exports were the low quality of products, obsolete technology, limited capacity to export due to central planning, trade barriers, and a lack of business knowledge and networks. In other words, both their exports and their imports were price insensitive.

² These data refer to the conversation factors for the exports.

To quickly check this, we ran simple trade regressions for both exports and imports, in which we related convertible exports/imports to the nominal exchange rate (a measure of price competitiveness) and the foreign/domestic GDP (a measure of income).³ The results of the regressions are shown in Tables 6 and 7 of the Appendix. The coefficient of the exchange rate is statistically insignificant in both regressions, while the coefficient of GDP is highly significant and large in size. This suggests that convertible exports and imports of the COMECON countries indeed did not seem to be sensitive to exchange rate movements. Thus, devaluations could not improve their trade balance. On the other hand, they seemed to be very sensitive to GDP, meaning that the economic crisis in the Western world of the late 1970s and early 1980s was likely to have had a substantial adverse impact on the convertible exports of the socialist countries.

We also ran a simple regression, relating price levels in Eastern European countries between 1960 and 1990, to the same two explanatory variables: the nominal exchange rate (i.e. the import conversion factor) and domestic GDP. The results, shown in Table 8 of the Appendix, indicate that the exchange rate is highly significant in relation to the price levels, both statistically (at 1% level of significance) and economically. Its coefficient of -0.8 suggests that a 1% devaluation/depreciation of the national currency is associated with a 0.8% increase in the price level despite the relatively low import levels in these countries. Although these results are only illustrative and should be taken with a grain of salt, they do suggest that the devaluations that some of the CESEE economies introduced in the 1970s and 1980s likely contributed to the high inflation they experienced afterwards. This inflation, in turn, reduced real incomes (through higher prices), slowing consumption and economic activity. Moreover, devaluations likely raised debt servicing costs, as foreign loans became more expensive in domestic currency terms, creating additional financial pressures.

In summary, the devaluations introduced by some Eastern Bloc countries in 1970s and 1980s with the intention to stimulate exports, reduce imports and improve current account deficits ultimately worsened economic conditions rather than alleviating them. The 'cure' proved worse than the 'disease,' bringing inflation, reducing real incomes, slowing economic activity and elevating debt servicing costs. As a result, exchange rate mismanagement further exacerbated the economic difficulties of the 1980s in Hungary, Poland, Romania and Yugoslavia. As the USSR by and large stopped generously subsidising energy exports to its CESEE satellites in 1975, several communist regimes had to engage in debt restructuring with Western creditors and to ask the IMF for help, as noted above.

7.6. DECISIONS ON HIGH DEFENCE SPENDING

Part of the USSR's squandering of the oil shock was due to defence spending. The Soviet Union spent a lot on defence by international standards, although it has been difficult for scholars to precisely quantify its defence burden (Firth and Noren 1998; Davis 2002). As discussed above, Firth and Noren (1998) found that Soviet defence spending increased by several percentage points of GDP in the second half of the 1980s. Of course, as the quote from Vitaly Katayev cited earlier indicates, 'myths' may have been

³ The exchange rate in the exports regression is the conversion factor for exports, and the exchange rate in the imports is the conversion factor for imports. Both are nominal and expressed as USD per unit of national currency. Exports and imports are also in nominal terms and expressed in USD. Domestic and foreign GDP are in real terms. Foreign GDP is proxied by the GDP of France. Since all variables are expressed in logs, they give the respective elasticities. The regressions are estimated using a panel fixed effects estimator, including country-fixed effects, with standard errors clustered at the country level. The time period over which the regressions are estimated is 1960-1990.

propagated by the Soviet leadership about the true extent of these outlays to serve domestic purposes. In any case, the Soviet Union did achieve military-strategic parity with the US during the 1970s, but at a high cost. According to Ellman (2004), there were 'major opportunity costs in terms of the development of the civilian sector and probably also in terms of economic growth.'

7.7. GORBACHEV'S REFORMS

The restructuring introduced by Gorbachev in 1987 contributed to the collapse of the command system in CESEE. Gorbachev initially followed the old Soviet policy of investing in the machine-building sector to upgrade the capital stock (Hanson 2003). But the effect was temporary, and there was public pressure to increase consumption and public spending. Realising that the old model was exhausted, Gorbachev looked for more radical options. He gave a lot of autonomy to state enterprises and wanted them to develop a market of socialist industries. But the result was that managers ended up accumulating inventories and bartering instead of selling at official prices, which were fixed and too low. This made transaction costs high and weakened productivity and output. Wages rose due to worker pressure, creating additional problems. The reforms generated losses, and the soft budget constraint meant that the government had to cover those losses. And then a big increase in the money supply at the end of the 1980s only exacerbated the shortages of consumer goods.

More specifically, a recent history of the fall of the Soviet Union by Vladislav M. Zubok (2021) presents a thorough account of all the details of the long decay of the communist world as well as its complete, sudden and, by and large, unexpected collapse. It mostly covers the Soviet Union itself, but it also analyses its satellite states in the Eastern Bloc and beyond. Zubok concludes that historical analysis to date has neglected the economic and financial reasons for the end of the Soviet Bloc. Thus, he pays close attention to these factors, of which the political leadership of the time apparently had little understanding. Zubok particularly portrays Gorbachev, the last leader of the Soviet Union, as a naïve neo-Leninist dreamer in favour of revolutionary reforms, but one who lacked any understanding of economics, business or banking in addition to being mostly surrounded by intellectuals who also lacked that expertise. This also implies that the collapse was not inevitable.

Zubok describes how the perception among Soviet elites evolved in a way that they started to view the costs of Soviet client states as more and more of a burden. However, defence outlays were not seen as crushing. Apparently, the Soviet military-industrial complex was remarkably cost-effective and the only major R&D-intensive sector. Above all, Zubok highlights the Soviet Union's problematic engagement with the global economy and its dependence on high oil prices. Instead of using its oil profits to import Western technology, Zubok concludes that the Soviet Union used them to import food and to subsidise its satellites. However, Gorbachev's first reforms were ignorant of Soviet macroeconomic stability. Instead, in 1985/1986, he introduced the 'struggle against drinking', a radical policy to cut alcohol consumption that triggered the collapse of an entire industry, caused Gorbachev's popularity to plummet right at the onset of a series of top-down reforms and, more importantly, led to a budgetary disaster, as taxes on alcohol accounted for a third of Soviet GDP. A year later, another unfortunate initiative of Gorbachev's Politburo sent 70,000 state inspectors out to improve the quality of Soviet goods. Thousands of goods were rejected for their poor quality, which resulted in the breakdown of entire chains of distribution and a host of defaults among state enterprises.

Expensive but ineffective modernisation initiatives, the catastrophe at the Chernobyl nuclear plant on 26 April 1986 and, above all else, the fall of the oil price caused a huge budgetary and trade deficit as well as rising external debt. However, as Zubok notes, rather than taking stock of policy failures, Gorbachev identified the 'bureaucratisation' of the party apparatus as a major obstacle to his Lenin-style revolution and prepared the Politburo for even more costly failures to follow along the 'inevitable' reform path. This included the key economic reform: the Law on Socialist Enterprises. Enacted in 1988 without any trial phase, this reform aimed to transfer the economic problems from the hierarchical party bureaucracy to state enterprises and working collectives. It was meant to introduce three S's – self-accounting, self-financing and self-governance – in what was dubbed an 'economy of socialist democracy'. The enterprises were allowed to keep potential profits, to export freely, to establish joint ventures with foreign partners, and to have their own currency account. One of the goals was to maximise the influx of hard currency. But, as Zubok notes, this was yet another misguided reform.

A major effect of the decentralisation of enterprise decision making was that they accumulated profits not for investment in new equipment to increase efficiency and quality but in order to maximise wages. In addition, many enterprises stopped producing much-needed consumer goods and focused instead on more expensive products. As Zubok shows, the misguided reforms also began to endanger the financial stability of the Soviet Union, with its complicated cash and cashless money systems. Enacted in 1988, the Law on Cooperatives allowed cooperatives and state enterprises to interact, to establish commercial banks, and to lend to each other. Moreover, Nikolai Ryzhkov, the chairman of the Council of Ministers of the Soviet Union, and his team of reformist economists warned the Politburo that the economy would not improve without reforming fixed prices. However, Gorbachev did not want to discredit his political reforms of perestroika and glasnost by raising prices. This missed opportunity led to an unregulated hole in the financial system, where cooperatives credited by their own banks started to buy from state enterprises at fixed prices in order to sell them at market prices at home or abroad. Zubok also mentions another profitable new scheme that saw commercial banks team up with state enterprises to convert cashless assets into cash.

By the end of the 1980s, the complete failure of economic reforms materialised, the quantity of money got out of control, supply chains were disrupted, housing construction slowed, stores were emptier than before, and the queues became longer as people started to hoard anything available. In turn, Gorbachev decided to make even more cuts to the central party apparatus, leaving behind only supporters of perestroika. Zubok concludes that Gorbachev's reforms had passed economic levers from the central regulators to local enterprises as well as political levers from the Politburo to the newly established Congress of People's Deputies of the Soviet Union and from local party organisations to local soviets. This undermined economic stability, ruined finances, destabilised the Soviet state, and triggered separatism.

With regard to the Soviet Union's client states in Eastern Europe, Zubok notes that the Soviet leadership increasingly saw them as a liability – and one that was only interested in the Soviet Union as a source of cheap energy and as an export market for goods that were not competitive on the world markets. According to Zubok, during Ryzhkov's visit to Warsaw in 1986, the Polish leader General Wojciech Jaruzelski revealed to him that the Polish economy was 'handcuffed' by enormous debt to Western banks and that it was up to Moscow 'to let Poland live or perish'. Ideas of a 'common currency' for the Eastern Bloc, 'deeper ties' with Hungary, or 'expanding cooperation' with the GDR were dismissed. In addition, Zubok quotes Gorbachev as saying after a trip to Prague in 1987: 'I told them frankly that we will not carry out our perestroika at your expense, but you also should not count on living at our expense.'

8. Conclusion

In this paper, we sought to answer the question of why communism collapsed in CESEE at the end of the 1980s. We investigated three main hypotheses: the international environment, the command system and policy mistakes. In addition to reviewing the existing literature, we tested these hypotheses using wiiw analyses of the time and the newly compiled wiiw COMECON Dataset. We also included a summary of some of the relevant wiiw reports of the time, which were digitised in addition to pre-1991 wiiw data. This provides the historical background of our current revisiting of the end of communist economies.

In this paper, we have not decisively solved the puzzle of why communism collapsed at the specific point in time. However, we have added further support to (or cast some doubt on) the existing theories of collapse from a current economic perspective. Clearly, the jockey, the horse and the racing track all had their roles to play.

In terms of the international environment, the oil shocks of the 1970s played a role, especially for the oil importers. Meanwhile, the oil price decline of the 1980s also had an important impact on the Soviet Union. The Volcker interest rate shocks likewise had a major impact, as reflected in current account balances, as they compounded the problem of the big debt build-up of many COMECON countries during the early 1970s, when interest rates were low and many of these countries took on foreign loans to invest in new technologies. In contrast, we find that the Western recessions (which themselves were also very much linked to the oil price and interest rate shocks) probably did not do much to accelerate the collapse of communism.

In terms of the command system itself, we identify a number of different attempts to reform (or not reform) the system during the 1960s and 1970s, in particular, but we do not detect clear successes in any of them. If anything, the countries that did most to reform (i.e. Hungary and Yugoslavia) performed worse economically. This strongly suggests to us that there were indeed serious obstacles to reforming of the system as the global economy changed and that those reforms which were made were by and large misguided and poorly implemented. Moreover, the desire of so many people to leave for the West, which itself was a feature of the political and economic parts of the system, also probably hastened the demise of communism in CESEE. Low convertible exports resulting from the closed nature of the system, combined with generally low competitiveness and technological backwardness, were also important factors in the decline, especially as global interest rates rose and current account balances deteriorated.

Finally, while mostly impossible to quantify using economic indicators, we identify several major policy decisions that contributed to the collapse. These include: the major underinvestment before 1970, which led to technological backwardness; the consequent decision to sharply increase external debt during early 1970s to make up for this prior underinvestment; the misguided export and import policies in response to the oil shocks of the 1970s; the Soviet squandering of the oil windfall between 1973 and 1985; high levels of defence spending; the Gorbachev reforms of the late 1980s; and the exchange rate mismanagement in Hungary, Poland, Romania and Yugoslavia. A particularly serious policy mistake was the Soviet Union's decision to replace the so-called Bucharest Principle of fixed five-year oil prices

in 1975 with the so-called Moscow Principle, a system of annually adjusted five-year moving averages based on world market prices, which exposed the COMECON countries to the full brunt of the 1970s energy crisis. Even considering the challenges posed by the international environment and rigidity of the system, without these mistakes, a different outcome could have been possible.

Moreover – in what is, to our knowledge, something that has not been previously analysed – extreme weather events also played a significant role in the decline of the Eastern Bloc by causing crop failures, which led to a loss of hard currency export revenues and subsequent current account issues.

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Appendix

Table 1 / The influence of monthly temperature change on grain and wheat production, 1969-1989

Specification dependent variable	1 Δ kt grain	2 Δ kt wheat	3 Δ kt grain	4 Δ kt wheat
independent variables				
Dependent t_{-1}	.	.	-0.479 (0.041)***	-0.305 (0.037)***
Δ kha crop sown area	1.316 (0.852)	1.753 (0.384)***	1.542 (0.651)**	1.097 (0.255)***
Δ C° deviation January	10 (364)	-8 (138)	-399 (532)	-7 (110)
Δ C° deviation February	2 (450)	-14 (230)	714 (746)	253 (357)
Δ C° deviation March	634 (580)	364 (306)	741 (792)	367 (350)
Δ C° deviation April	-903 (553)	-177 (145)	-1959 (1294)	-553 (367)
Δ C° deviation May	-3138 2040	-1747 1177	-1689 (1431)	-1510 (1089)
Δ C° deviation June	-2838 (1733)	-814 (474)	-2087 (1182)	-753 (404)
Δ C° deviation July	-1376 (1117)	-340 (404)	-1418 (1027)	-314 (336)
Δ C° deviation August	-1212 (500)**	-252 (134)	-1206 (472)**	-302 (94)**
Fixed country and year effects	Yes	Yes	Yes	Yes
Observations	152	152	144	144
Countries	8	8	8	8
R-squared	0.42	0.47	0.58	0.53

Note: Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

Source: wiiw COMECON Dataset; own elaborations

Table 2 / The influence of seasonal temperature change on grain and wheat production, 1969-1989

Specification dependent variable	5 Δ kt grain	6 Δ kt wheat	7 Δ kt grain	8 Δ kt wheat
independent variables				
Dependent t_{-1}	.	.	-0.466 (0.055)***	-0.330 (0.029)***
Δ kha crop sown area	1.443 (0.784)	2.102 (0.165)***	1.667 (0.640)**	1.369 (0.076)***
Δ C° deviation spring	-2463 (1013)**	-930 (231)***	-2741 (1458)	-1205 (467)**
Δ C° deviation summer	-7071 (4443)	-2331 (1529)	-5293 (3344)	-1967 (1224)
Fixed country and year effects	Yes	Yes	Yes	Yes
Observations	152	152	144	144
Countries	8	8	8	8
R-squared	0.36	0.39	0.54	0.47

Note: Robust standard errors in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: wiiw COMECON Dataset; own elaborations

Table 3 / Impact factors of the change in the share of exports over imports of raw materials (non-mineral and non-food), foodstuffs and food processing, 1970-1989

Specification dependent variable	9 Δ food trade	10 Δ food trade	11 Δ food trade	12 Δ food trade
independent variables				
Dependent t_{-1}	.	-0.021 (0.090)	.	-0.021 (0.113)
Δ fiscal deficit	0.074 (0.544)	0.108 (0.525)	-0.046 (0.820)	-0.059 (0.796)
Δ fuel trade	0.007 (0.077)	0.015 (0.079)	0.491 (0.243)*	0.519 (0.239)*
Δ kg grain per person	0.063 (0.027)*	0.065 (0.034)	0.078 (0.025)**	0.079 (0.036)*
Δ kg meat per person	0.383 (0.657)	0.405 (0.646)	0.236 (0.589)	0.230 (0.573)
Fixed country and year effects	Yes	Yes	Yes	Yes
Observations	130	123	111	105
Countries	7	7	6	6
R-squared	0.30	0.31	0.41	0.42

Note: Robust standard errors in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: wiiw COMECON Dataset; own elaborations

Table 4 / Determinants of real growth in national income (production approach), sample including the Soviet Union, 1968-1989

Specification	13	14	15	16	17	18
dependent variable	Δ nat.inc.	Δ nat.inc.	Δ nat.inc.	Δ nat.inc.	Δ nat.inc.	Δ nat.inc.
independent variables						
Dependent t_{-1}	.	0.705 (0.082)	.	0.685 (0.091)***	.	0.726 (0.077)***
Δ capital stock	-0.062 (0.175)	-0.219 (0.102)*	0.044 (0.189)	-0.127 (0.120)	-0.051 (0.184)	-0.186 (0.117)
Δ population	-1.440 (2.309)	-2.040 (1.484)	-1.105 (2.746)	-1.721 (1.837)	-1.756 (3.024)	-2.531 (1.817)
Δ fuel trade	0.007 (0.029)	-0.007 (0.029)	.	.	0.006 (0.030)	-0.005 (0.032)
Δ food trade	0.038 (0.020)	0.025 (0.017)	.	.	0.025 (0.028)	0.009 (0.022)
Δ kg grain per person	.	.	0.011 (0.003)***	0.012 (0.002)***	0.008 (0.004)*	0.011 (0.003)**
Fixed country and year effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	146	139	152	152	132	132
Countries	7	7	8	8	7	7
R-squared	0.23	0.53	0.32	0.58	0.25	0.56

Note: Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

Source: wiiw COMECON Dataset; own elaborations

Table 5 / Determinants of real growth in national income (production approach), sample excluding the Soviet Union

Specification	19	20	21	22	23	24
dependent variable	Δ nat.inc.	Δ nat.inc.	Δ nat.inc.	Δ nat.inc.	Δ nat.inc.	Δ nat.inc.
independent variables						
Dependent t_{-1}	.	0.713 (0.068)***	.	0.689 (0.084)***	.	0.718 (0.071)***
Δ capital stock	-0.102 (0.204)	-0.230 (0.121)	-0.007 (0.217)	-0.164 (0.127)	-0.095 (0.233)	-0.206 (0.144)
Δ population	-2.168 (3.277)	-2.196 (1.915)	-2.282 (3.778)	-2.450 (2.330)	-2.588 (4.377)	-2.664 (2.368)
Δ fuel trade	0.174 (0.071)*	0.155 (0.065)*	.	.	0.185 (0.072)*	0.169 (0.073)*
Δ food trade	0.032 (0.026)	0.020 (0.022)	.	.	0.017 (0.038)	0.005 (0.028)
Δ kg grain per person	.	.	0.012 (0.003)***	0.011 (0.002)***	0.009 (0.005)	0.009 (0.003)**
Fixed country and year effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	125	119	133	133	113	113
Countries	6	6	7	7	6	6
R-squared	0.27	0.59	0.32	0.59	0.28	0.60

Note: Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

Source: wiiw COMECON Dataset; own elaborations

Table 6 / Sensitivity of convertible exports of the socialist countries to exchange rate movements and foreign GDP

VARIABLES	Exports convertible
Log of conversion factor for exports	0.027 (0.020)
Log of French GDP	3.302*** (0.109)
Constant	-83.478*** (3.025)
Observations	172
Number of countries	8
R-squared	0.900

Note: The conversion factor is defined in such a way that decline stands for depreciation.
Robust standard errors in parentheses. *** denotes $p < 0.01$, ** denotes $p < 0.05$, * denotes $p < 0.1$.
Source: wiiw COMECON Dataset; own elaborations

Table 7 / Sensitivity of convertible imports of the socialist countries to exchange rate movements and domestic GDP

VARIABLES	Imports convertible
Log of conversion factor for imports	0.022 (0.018)
Log of domestic GDP	2.106*** (0.330)
Constant	-18.720*** (4.317)
Observations	105
Number of countries	8
R-squared	0.694

Note: The conversion factor is defined in such a way that decline stands for depreciation.
Robust standard errors in parentheses. *** denotes $p < 0.01$, ** denotes $p < 0.05$, * denotes $p < 0.1$.
Source: wiiw COMECON Dataset; own elaborations

Table 8 / Sensitivity of price level of the socialist countries to exchange rate movements and domestic GDP

VARIABLES	Price level
Log of conversion factor for imports	-0.818*** (0.146)
Log of domestic GDP	0.906 (0.758)
Constant	-9.088 (10.007)
Observations	127
Number of countries	8
R-squared	0.814

Note: The conversion factor is defined in such a way that decline stands for depreciation.
Robust standard errors in parentheses. *** denotes $p < 0.01$, ** denotes $p < 0.05$, * denotes $p < 0.1$.
Source: wiiw COMECON Dataset; own elaborations

IMPRESSUM

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