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THE PUZZLES OF FAIRLY FAST GROWTH AND RAPID COLLAPSE UNDER SOCIALISM

by

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Materials published in this series have a character of working papers which can be a subject of further publications in the future. The views and opinions expressed here reflect Authors' point of view and not necessary those of CASE .

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I. INTRODUCTION ¹

The national statistics and international comparisons based on purchasing power parities suggest that the Former Soviet Union (FSU) in the years 1925-75 and Central and Eastern Europe in the years 1945-80 experienced economic growth comparable to that of many market-based economies of similar levels of development. This must be considered a puzzle given the incentive problems, the absence of proper prices, limited competition and resistance to innovation in economies dominated by a state sector. However, this fairly fast growth came suddenly to a halt in the 1980s. This phase of stagnation and limited reform is now followed not by a recovery, but by a phase of surprisingly deep collapse, indeed in some countries a near disintegration.

The paper discusses the three phases with the intention of establishing relationships between them and, in this way, of providing a better understanding of each of the two puzzles.

The analysis of development is conducted in terms of standard models of international technology transfer, capital accumulation and catching up (e.g. Gomulka, 1990). This analysis is informed by the consideration of the distinct characteristics of development under socialism. These characteristics relate in part to preferences of the central authorities, embodied in the so-called communist strategy of industrialization, and in part to the implications for innovation and development of the socialist economic system.

The standard view of the socialist development was that the short-term interests were sacrificed for the benefit of future generations. The paper argues that this was true only in the initial phase of development. In the later phase the authorities had switched to an opposite policy, one of sustaining a reasonable pace of improvement for the current generation under an inefficient system at the expense of future generations. The collapse phase came with the exhaustion of the growth reserves offered by the policy. The intergeneration terms of exchange have switched once more, again to work against the interests of the current generation.

¹ An earlier version of this paper was presented at KDI's 20th Anniversary Symposium on '*Economic Growth and Social Capability*', held in Seoul, July 1-3, 1991 and also was edited in Kim & Perkins, eds., *Economic Growth and Social Capability*, MIT Press, 1992.

The paper also discusses the particular causes of the collapse and the prospects of a revival after the transition to a market-based system is advanced.

II. STYLIZED GROWTH PATHS OF THE 20TH CENTURY'S USA AND TWO EUROPES, WESTERN AND EASTERN

The judgement on whether a country's pace of development is slow or fast can be formed only by comparing it to the rates at which economies of other countries develop or have developed. Such a comparison exercise can be conducted in two substantially different ways. One relates the levels of development and their rates of change at the same time and the growth paths in the course of time. The other compares the growth rates of development of the various national economies observed not at the same time but at the same level of development. Our analysis of the growth performance under socialism will be much aided by the use of both types of comparisons.

The comparisons will be sharper and will facilitate in providing the bold and instructive generalizations I seek to identify if they omit the complex ups and downs of actual growth paths and concentrate instead on what I call 'stylized growth paths'. These paths should meet two criteria: (i) they should as accurately as possible reflect relative levels of development at key rates and (ii) the path of the reference economy, taken to be the US one, should reflect accurately its own trend growth rate.

Figures 1 and 2 portray three such stylized growth paths, of the economies of the USA, Western Europe (OECD), and Russia (FSU) and Eastern Europe. The Figures also indicate key dates at which at least one of the trend rates changes, the magnitudes of the trend rates, and the absolute and relative levels of development. I take Gross Domestic Product (GDP) per manhour as a measure of such levels. Under constant returns to scale and constant capital/output ratio, changes in the measure can come only as a result of technological innovation and or other qualitative changes. I assume that the two circumstances tend to prevail in the '*long run*'. For that reason I also take the measure to reflect the level of technological advance. Its rate of change can therefore be also interpreted as the rate of qualitative (particularly technological) changes. This interpretation should be kept in mind when reading **Figure 3**.

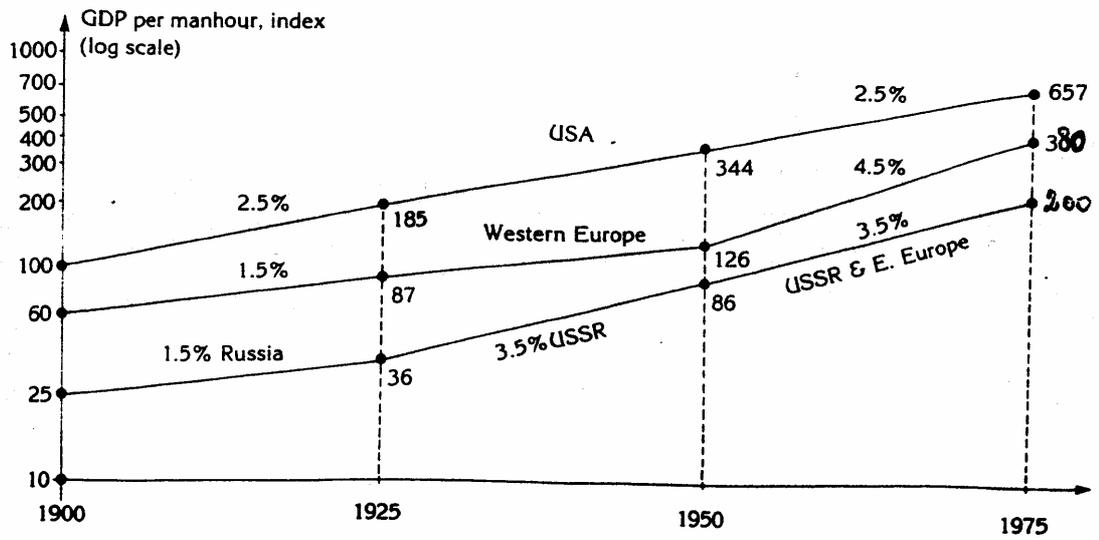


Figure 1. Stylized Growth Paths: USA, Eastern Europe and USSR and Eastern Europe, 1900-1975

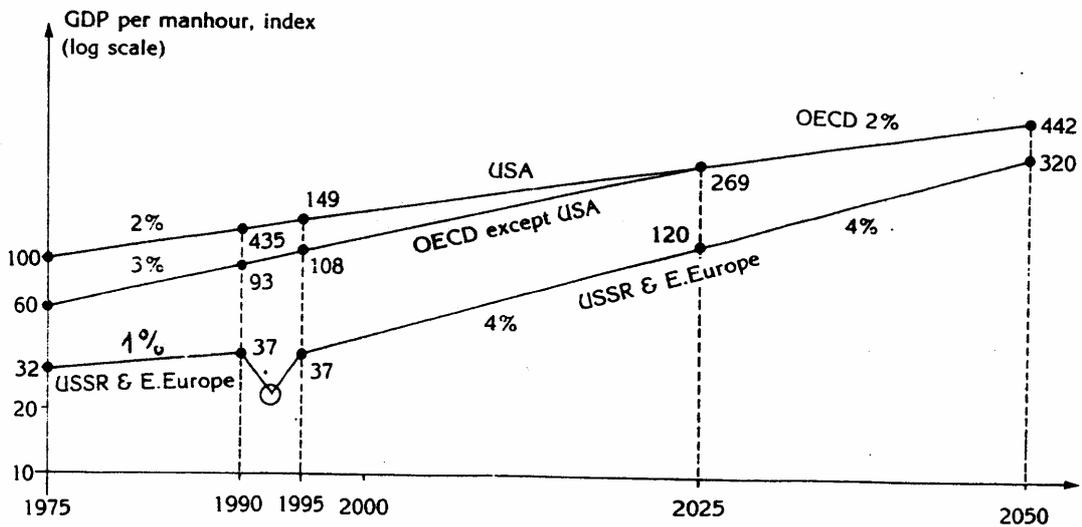


Figure 2. Stylized Growth Paths: USA, non-US OECD and USSR and Eastern Europe, 1975-2050

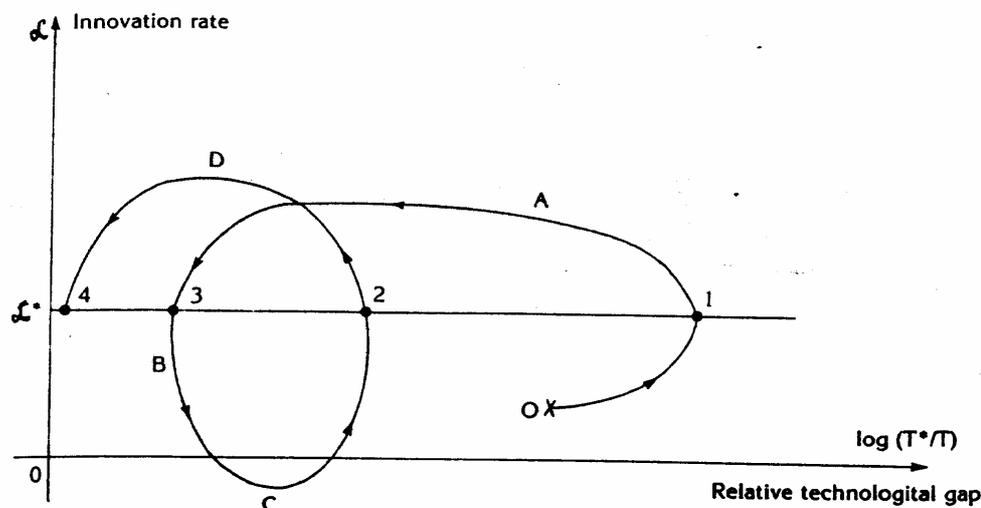


Figure 3. Four phases of development and the productivity growth loop: Russia (USSR) and Eastern Europe, 1900-2050.

1. Sources of Data²

The principal source of statistics relating to the USA and Western Europe in 1900 and during the first 75 years of this century, is A. Maddison (1979), Annex p.43. According to this source, the average (trend) growth rate of US GDP per manhour was, in the years 1900-1975, 2.4 per cent. In 1900, the level of GDP per manhour was (taking the US level as 100): 61 in Germany, 55 in France, 39 in Italy and 94 in the United Kingdom. The trend growth rates of these levels in the period 1900-1950 were, in Western Europe, typically between 1 and 1.5 per cent. The West European rate of growth increased significantly, to between 4 and 5 per cent per annum, in the period 1950-1975. In my diagram the relative position of Western Europe, taking the US level of GDP per manhour as 100, is as follows: 60 in 1900, 37 in 1955 and 60 again in 1975. The arithmetic average for the four main West European countries, using Maddison's data, was (the US level equals 100): 62 in 1900, 40 in 1955 and 71 in 1975. Adding to the four the countries which, in the postwar period, were developing less rapidly, such as Spain and Portugal, brings down the Western European index of relative position in 1975 to about 65.

² Reading of this section is helpful but not necessary to follow the paper.

In 1975 this index is about the same as for the whole OECD group of 23 countries (all except the USA). Hence the West European growth path in Figure 1 (period 1900-1975) continues after 1975 as the (non-USA) OECD growth path (**Figure 2**). The new trend growth rates assumed for the USA and non-USA OECD in the period 1975-2050 reflect the lower trend rates which have been observed since the growth slowdown of the 1970s. In the year 1990, my non-USA OECD relative index equals 69 which is approximately in agreement with the data supplied by the International Comparison Project, using purchasing power parities. According to the findings of that Project, real GDP per capita in 1985 was, in the five major OECD countries outside the USA, as follows (the US level equals 100): 77 in Germany (85 in West Germany), 79 in France, 59 in Italy, 69 in the UK and 75 in Japan (Summers and Heston, 1988). The arithmetic average for the Five is 72. Again taking into account the other countries of the OECD group outside the USA would bring the index even closer to my stylized number of 69.

The relative position of the FSU (Russia until 1922) and Central and Eastern Europe is more difficult to gauge. According to one Russian source the per capita national income in the Russian Empire was, in 1913, about 17 per cent of the US level. On the other hand, Abram Bergson suggested that Soviet per capita consumption in 1928 was 23 per cent of the US level (for references to the two sources and other details see Gomulka, 1990, p.95). In **Figure 1** I take the Soviet relative index to be 19 in 1925. Western estimates of the Soviet and Central and Eastern Europe GDP levels tended to be probably exaggerated, due to insufficient account taken of the poor quality of the goods produced. The newest estimates aim to correct this bias of earlier ones. One such estimate concludes that in 1989 "*per capita GNP in Eastern Europe fell to 27 per cent of that of the US, down from 32 per cent in 1975*" (CIA, 1990, p.4). I do not differentiate between the FSU and Central and Eastern Europe and therefore my stylized index for the area stands, in 1975, at 32 per cent. The index drops to 27 per cent in 1990. I also assume the trend growth rate for the FSU to be the same in the period 1925-50 and 1950-75. There are grounds to think that the rate was somewhat higher in the latter period (although official Soviet statistics tell us otherwise, but that statistics were clearly more inflated in the former period). I am also assuming that the present collapse would reduce the GDP per man hour by some 10 to 30 per cent. However, by 1995 the countries are presumed to

regain their 1990 level and resume post reform development at a fairly high rate³.

2. The Grand Characteristics of the Growth Paths

Two destructive World Wars conducted on the European land allowed the USA to obtain a significant lead over Western Europe in the first half of this century. However, by 1975 Western Europe regained the relative position it had in 1900 and has since continued, along with Japan and the other OECD countries, to close the remaining productivity gap, albeit at a slower pace. The socialist revolution of 1917-1920 spared the FSU the impact of the World Depression of the 1930s. Despite the extremely destructive Second World War, in the period 1925-1950 the FSU appeared to improve its relative position: somewhat vis-a-vis the USA and significantly vis-a-vis Western Europe. The Soviet fairly high growth continued in the period 1950-75. As suggested in **Figure 1**, the trend rate of growth of the Western European economy may have been higher still. The performance of the socialist economies nevertheless must be judged as satisfactory, in view of their continuing ability to catch up, in terms of GDP per manhour, with the USA. However, in the second half of the 1970s that ability was apparently exhausted. More than that, the socialist economies began to behave as if inflicted by a disease of some kind. By the turn of the 70s and 80s, a period of stagnation began (in Poland, Hungary and Yugoslavia, of stagflation) leading to crisis and collapse a decade later.

3. The Trend Innovation Rate, Catching-Up and Equilibrium Gap: CMEA

Another and, in fact, a more meaningful way of organizing the data on growth rates is to relate the trend innovation rate to the relative level of development. Gomulka and Schaffer (1987) derive one such relationship for seven CMEA countries (the FSU and Central and Eastern Europe) and another for twelve OECD countries (see also Gomulka, 1990, ch.9). The method is as follows. Using industrial data from the period 1955-85, a Cobb-Douglas production function is estimated (the dot denotes growth rate):

$$y = hk_t + sL_t + g \ln x_t + l_0 + dl_1 + \text{unexplained residual} \quad (1)$$

³ In Poland 1989-1993, total employment declined by about 12% and GDP by 14% according to official statistics and by 8 to 10% according to some independent estimates. Therefore, Poland probably regained its pre-reform level of GDP per man hour already in 1993.

where y is the value added per unit (or per man hour where data are available), k is the capital-to-labour ratio, x is the ratio of y in the USA to that in any specific country, and δ is a dummy variable equal to unity for the Seven and zero for the Twelve. The parameter s is zero if returns to scale are constant. A variable component of technological change $\gamma \ln x_t$ is there to capture the effect of international technology transfer from Technology Frontier Area (TFA) to a particular country, with the US manufacturing sector serving as a proxy for the TFA⁴.

The trend rate of innovation α is the growth rate of y which obtains when $k=y$ and either $s=0$ or $L=0$. From (1) it follows that

$$\alpha = y_{\text{trend}} = \frac{\gamma}{1 - \mu} \ln x + \frac{\lambda_o + \delta \lambda_1}{1 - \mu} \quad (2)$$

The gap x declines so long as α exceeds α^* , which is the trend growth rate of labor productivity in the US manufacturing. The ensuing catching-up ends at a level of $x+x^*$ at which $\alpha=\alpha^*$. The level x^* is the equilibrium productivity gap. From (2), then

$$\alpha^* = \frac{\gamma}{1 - \mu} \ln x^* + \frac{\lambda_o + \delta \lambda_1}{1 - \mu} \quad (3)$$

Equation (1) was estimated using pooled data and, for the CMEA, two different sets of purchasing power parities (PPPs) needed to produce data on x . The results were as follows:

Alton's PPPs: $x_{OECD}^* = 1.02$; $x_{CMEA}^* = 2.24$; $x_{CMEA}^{**} = 3.23$

Summers-Heston: $x_{OECD}^* = 1.05$; $x_{CMEA}^* = 1.67$; $x_{CMEA}^{**} = 2.32$

where x_{CMEA}^{**} are estimates obtained by allowing for a 1% underreported inflation rate. The exercise above permits to identify the essential differences between the OECD growth path and the CMEA growth path. They

⁴ Direct indicators of technology transfer, such as royalty payments or import of royalty payments or import of capital goods, are typically unreliable as measures of the total productivity impact. Royalty payments cover only a small and varying proportion of disembodied technological imports. Impact of embodied technology imports depends not just on the volume of machinery imports, but also on the magnitude of technological improvements, such imports bring about. This magnitude is related to the productivity gap between the exporting country and the importing one.

are that (i) the trend innovation rate for the CMEA group has since 1955 been lower at any given time, and (ii) while the catching up for the OECD group is to be successful (x^* close to 1), it is to be very much unsuccessful for the CMEA group (x^* or x^{**} significantly exceeding 1).

III. FOUR PHASES OF DEVELOPMENT IN THE FSU AND CENTRAL AND EASTERN EUROPE

From the intertemporal and international growth comparisons presented in **Figures 1 and 2**, and comparisons from our discussion of this evidence in section 2 above, it follows that four distinct phases of development of the countries of the FSU and Central and Eastern Europe can be distinguished. First two of these phases refer to their socialist past, third to current developments and fourth to the post-transition period. The phases are as follows:

(A) ***Fast or Fairly Fast Growth.*** For the FSU this phase relates to the half century period, 1925-1975. For the countries of Central and Eastern Europe the phase was in the period 1945-1975.

(B) ***Slowdown and Stagnation.*** Both the FSU and Central and Eastern Europe entered into that phase at about the same time, the second half of the 1970s, and stayed in it throughout the 1980s.

(C) ***Collapse and Transition.*** A high synchronization of crisis developments throughout the region of Central and Eastern Europe and the FSU is again a remarkable feature of this phase. The depth of collapse and the spread of transition from a planned, state-dominated economy to one driven by competitive markets and private ownership are bound to vary considerably between the countries. Yet the major part of the drama is likely to be played out in all of them in about the same time, namely the first half of the 1990s.

(D) ***Recovery and Resumed Catching-up.*** In 1995 the relative position of Central and Eastern Europe and the FSU vis-a-vis Western Europe, in terms of GDP per manhour, will be about the same as was the relative position of Western Europe vis-a-vis the USA in 1950. If the transition to a market economy progresses sufficiently far by that time, then the conditions would exist for the region to resume development at a rate of growth similar to that enjoyed

by Western Europe in the years 1950-1990. This resumption of catching-up of the Technology Frontier Area would be based on a high rate of transfer of technologies and skills from the OECD countries, this transfer to be aided and supplemented by the region's own R&D and innovative activity. The market economy, competition and an increasing integration of the region with the world economy through international trade and ownership rights should provide the necessary environment of incentives for this massive technology transfer to take place.

1. Presentation of the Four Phases: the Productivity Growth Loop

It may be useful, for purposes both of presentation and interpretation, to show the four phases as segments of the growth path representing the relationship between the innovation rate and the (relative) technological gap. This I do in **Figure 3**. In it T^* represents the technology level in the Technology Frontier Area (TFA) and T is the technology level in the FSU and Eastern Europe. Both T^* and T are measured in terms of GDP per manhour. a^* and a are the growth rates of T^* and T , respectively. So long as the magnitude of the international technology transfer is related causally to a range of factors, social and economic, which themselves are related positively to the ratio T^*/T , the innovation rate a is 'explained' by that ratio. In the typical case a less developed economy travels along a growth path which in **Figure 3** begins at point 0, where a is low and T^*/T high, moves to point 1 from which a real catching-up begins, and moves on to point 3, where the catching-up ends. This path is what I call the (First) *Hat-Shape Relationship* (Gomulka, 1990, ch.9)⁵. However, the equilibrium technological gap x^* at point 3 should typically be small, if any. If that gap is still fairly large, as it turned out to be the case for our group of socialist countries, a revolution may take place, as it does now, with an aim to produce systemic changes that would permit the countries to move closer to the TFA. During such a revolution the economy suffers from large supply shocks which temporarily reduce productivity growth (may even reduce productivity levels). Consequently, the economy moves backwards from point 3 to point 2 in **Figure 3**. This movement has the same purpose as the earlier travel from point 0 to point 1. On both occasions preconditions of a subsequent take-off are being created. The preconditions during phase C involve, apart from developing new

⁵ This relationship was first discussed, in terms of both data and theory, in my *Innovative Activity, Diffusion and the Stages of Economic Growth*, a monograph of the Aarhus Institute of Economics, 1971. A brief survey of related literature is provided in my entry on 'Catching-up' in *The Palgrave: A Dictionary of Economic Theory and Doctrine*. Macmillan, 1987.

institutions and incentives, also actual destruction of a part of the economy, so that resources can be released and re-deployed.

IV. THE TWO PUZZLES AND THE INTERGENERATION TERMS OF EXCHANGE

The productivity growth loop is the extraordinary feature of the socialist growth path. There are two puzzles related to that feature, both concerned with the neighbourhood of point 3 in **Figure 3**. This point was supposed to be a growth equilibrium point, one that can be sustained once it is reached. The fall of a down to a^* was to be expected. But the productivity slowdown did not stop at a^* , but continued during phase B. Thus the socialist economies of the FSU and Central and Eastern Europe failed in two respects: the lowest productivity gap they managed to achieve was high and they were unable to retain that limited achievement. The first of the two failures is not a surprise, given what we know about the poor, sometimes hostile innovation environment under socialism (Berliner, 1976, Kornai, 1980, Gomulka 1986, 1990). The second failure, however, is a surprise, or a puzzle. So is also the good innovation and productivity performance of the socialist countries in the course of phase A.

1. The Puzzle of Fairly Fast Innovation Despite Resistance to Innovation

Elsewhere I discuss in some detail the "*innovation characteristics*" of socialist economies (Gomulka, 1990, ch.7.; for a similar discussion consult Balcerowicz, 1990, Hanson and Pavitt, 1987 and Poznanski, 1987. An earlier, monograph-size discussion was provided by Berliner, 1976). For the purposes of this paper it will be sufficient just to list these characteristics:

(i) Most investment decisions are centrally made and the main innovation drive comes also from the centre;

(ii) Innovating enterprises are often motivated by the need to overcome supply difficulties;

(iii) Enterprises do little on their own in process and product innovation not only because they cannot do much but also because they do not need to innovate in order to sell and survive; nor do they gain much if they can and do innovate;

(iv) Enterprises tend to be large in scale, with strong monopolistic powers, and to trade off choice and quality for quantity;

(v) The time-lags between domestic inventing and innovating is high and the subsequent diffusion of innovations is slow.

Market-based economies are characterized by the presence of large risk capital, the purpose of which is to sustain a high rate of birth of enterprises set up to exploit promising domestic or foreign inventions. The innovation/investment decision is thus diffused and decentralized. These numerous small-scale enterprises effectively serve the role of a 'testing ground' for new inventions. The market is thus used as a screening device for the purpose of channelling resources from old to new industries in a rational way. In socialist economies, however, screening of almost all innovation possibilities which involved significant investment expenditures has been centralized and risk-taking almost fully nationalized. The limited screening capacity of the centre would call for the construction of enterprises that are few in number and large in scale. These new enterprises rather than existing ones would also be the main vehicle for innovation. In such a system a fall in investment activity, such as the one which occurred in Eastern Europe in the 1980s, would have a particularly strong impact on the aggregate rate of innovation.

Socialist central planners, in their role as managers of the national economy, sought to induce enterprises to economize on inputs needed to obtain given final outputs. To this end they have used incentives, technological norms and ambitious output targets. Enterprise managers, however, tended to minimize the effort of workers and their own needed to obtain given earnings. To further that end, the managers would have used their superior knowledge of enterprise technologies and the industrial power of workers to bargain down the imposed input norms and output targets. They would also seek to meet the targets by manipulating the output mix and quality characteristics of the goods produced. In this manipulation they would take advantage of two systemic features, low price flexibility and high aggregate demand. Inflexible prices led to widespread and persistent microeconomic disequilibria, and this in turn caused the phenomenon of '*forced substitution*' (of shortage goods by surplus goods). High aggregate demand ensured that nearly anything produced was sold.

These characteristic features of socialist economies imply that the enterprises would tend to use more resources, in particular energy and other intermediate inputs, to produce the same final outputs. The presence of a significant material-intensity bias in these economies has indeed been confirmed (Poznanski, 1987; Gomulka and Rostowski, 1988). This enterprise-based bias would in turn find reflection in the sectoral composition of the economy, as central planners would be forced to expand sufficiently the energy and other

materials-producing sectors to meet the enterprise demands. The heavy emphasis on industrial development and within industry on the production of inputs became consequently the hallmark of the socialist development strategy.

At the same time the central authorities in the socialist countries, in the FSU above all, have placed an extraordinary emphasis on technical education, R&D, and industrial technological innovation. The Soviet R&D sector has been expanding since 1928 at a very high rate, so much so that already in 1978 the number of Soviet R&D scientists and engineers was "nearly 60 per cent greater than the US" (Nolting and Feshbach, 1979). This remarkable, even if quantitative and not qualitative, progress has been accomplished despite the extraordinarily high human and material losses during the Second World War. As in other newly industrialised countries this large R&D capability was used by the FSU to implement the adoption of existing Western technologies in newly-built enterprises.

A dual-economy model may be used to demonstrate the productivity impact of expanding investment and concentrating it in the '*modern*' sector. By shifting resources from the '*backward*' sector to the modern one, the economy-wide innovation rate and productivity growth can be higher than the rate of productivity growth in the modern sector (as well as in the backward one)⁶. This type of advantage of backwardness ends once the state of maturity is reached, which is a situation when most resources sit already in the '*modern*' sector. There is some evidence to suggest that this maturity stage was reached, at least in the FSU, in the 1970s (Gomulka, 1986a,b).

The model explains why for a while it was possible for these economies to grow at fairly fast rates. To explain the collapse, it is necessary to assume additionally that the technology (and hence productivity) gaps between their '*modern*' parts and the Technology Frontier Area are inherently large and that this large size is system related. Fairly fast growth is thus connected with the starting point and successful macroeconomic policies (large profits, large investments, fairly low inflation), while the collapse is connected with deficient microeconomic features, particularly poor incentives and information processing inefficiencies. The latter deficiencies may have become stronger with the increased complexity of these (centrally managed) economies.

⁶ The classification backward/modern cuts across enterprises and actual sectors of the economy. In Russia of the early 20th century there were islands of modernity in every branch of economic activity.

Phase A may be further divided into three sub-phases:

- (A1) accelerated accumulation,
- (A2) sustainable growth, and
- (A3) mortgaged future, non-sustainable growth.

During A1 the current generation is called upon to make sacrifices in order to fund development. Not only material consumption is restrained, but so is the investment in housing and other types of 'non-productive' infrastructure. This was the period of 1925 to 1955 in the FSU and 1945-1955 in Central and Eastern Europe. During A2 the share of investment in GDP stabilizes. There is also a shift in the composition of investment resources in favour of consumer industries, agriculture and housing⁷. This was the period 1955-1970 in the FSU and Eastern Europe. In the 1960s there already appeared the first indications of growth slowdown. The authorities responded, in the 1970s (sub-phase A3), by an attempt to seek external resources in order to prolong the period of fairly fast growth⁸. Eastern Europe also took advantage, in addition to large Western credits, of cheap Soviet energy resources, postponing the costly development of its export capability to acquire these resources at world prices in international markets.

The three development strategies have had an impact on the intergeneration transfers. Generation A1 contributed to the welfare of future generations, but generation A3 sought to improve its welfare at the expense of future generations. This was most in evidence in Central and Eastern Europe, with a rapid rise of international debt in the 1970s. Throughout the area, including the FSU, the policy was adopted of extreme neglect of the environment and plunder of natural resources.

The effective intertemporal transfer of resources, from the 1980s to the 1970s, caused the growth slowdown of the 1980s to be larger than it would have been otherwise. Initially, the authorities still continued to protect the consumer, as the following data indicate:

⁷ This was evident, especially in the FSU after 1956.

⁸ Romania and Yugoslavia were the forerunners to be followed by Hungary and Poland. The FSU borrowed relatively little, but managed to completely use up its international reserves as well as deplete its natural resources considerably.

	GDP	Consumption	Investment + Activity
Hungary, 1984 1979=100	89.1	109.8	36.7
Poland, 1982 1979=100	72.5	88.9	42.7
Eastern Europe, 1984 1978=100	95.9	109.3	66.5

Source: *Economic Survey of Europe in 1989-1990*, UN, New York 1990, Appendix Table B2, p.388.

The policy led to extraordinarily large falls in investment activity, especially in Hungary and Poland, and this in turn has reduced the innovation rate and productivity growth. The productivity slowdown in the FSU was, quite appropriately, less dramatic, yet still larger than one would expect. The large falls of Western machinery and technology imports by the whole area must have contributed to that slowdown.

2. The Puzzle of Collapse Despite Reform

In the 1960s, 70s and early 80s there was, in Central and Eastern Europe, a generally accepted expectation that reforms would bring about an immediate improvement in efficiency and the level of activity. The actual reforms were usually more limited than planned and, therefore, when the improvements proved to be elusive or negligible, this negative outcome was not seen as surprising. However, when radical reforms eventually came about, in the years 1989-91, their immediate effects were large falls in productivity and activity. This response to reform has been and is puzzling, if not to say shocking, for the economics profession, reform governments, and the populations of the countries concerned.

The explanation of the puzzle involves analysis of the following three groups of contributing factors:

- (i) pre-reform (initial) macroeconomic conditions of the socialist economics;
- (ii) pre-reform microeconomic and institutional conditions; and

(iii) traumatic supply and demand shocks associated with substantially different relative prices, collapse of the CMEA and transition to private ownership structure.

The first two categories of factors are related to our earlier discussion of the socialist development strategy in general and of the policies adopted in the twilight period of Soviet socialism, based in part on mortgaging the future in order to extend the life of an ailing system. Let us discuss the two categories of factors in turn.

V. PRE-REFORM MACROECONOMIC CONDITIONS

Socialist central planners used to be capable of maintaining macroeconomic control. They kept wages low and this ensured that profit margins were exceptionally high by Western standards⁹. These profits were then used to finance large investment activity and to fund current expenditure of the state budget. Except in Yugoslavia, central planners were also able to control well the growth of wages and other incomes and thereby limit the price inflation to rates typically below 10 per cent per annum. Tight incomes policy combined with high aggregate demand ensured nearly full employment while strict control of imports ensured balance of payments equilibrium.

However, with the advance of industrialization and the emergence of large urban population the task of maintaining a macroeconomic discipline has become progressively more difficult. The communist governments have continued to be authoritarian, unwilling to derive legitimacy and authority through the democratic process, but at the same time increasingly hesitant to apply force in order to impose the discipline. They would rather allow consumer subsidies to overburden the budget, even if that implied the necessity to accept large budget deficits¹⁰. These deficits would then be financed by an

⁹ These profit margins have tended to be particularly high in enterprises producing durables and other manufactured consumer goods. By limiting supplies of these goods, the planners were able to capture monopoly profits. These profits were then used to finance investment projects in producer goods industries where prices (and profits) were kept low. There was consequently a negative cross-industry relationship between the investment rate and the profit rate (Gomulka, 1986c, p.166).

¹⁰ In Poland, in the year 1984, subsidies reached 16 percent of GDP, of which most were consumer subsidies. They represented about one third of the state budget. In 1990, first year of the reform, subsidies were reduced to 6 percent of GDP. Similarly high levels of subsidies were reached, in the 1980s, throughout Central Europe and the FSU.

inflation tax or borrowing abroad. The incomes policy also became soft under the pressure of the strike weapon. When price inflation was kept low artificially, by an administrative fiat, consumer markets would deteriorate, producing soon the impression of a collapsing economy (Poland, 1981, the FSU 1990-91).

VI. PRE-REFORM MICROECONOMIC CONDITIONS

Apart from social and political, there have been also purely microeconomic causes of the deteriorating macroeconomic equilibrium. The socialist economies were, in the 1980s, obviously losing out in international markets to newly industrialized countries, such as South Korea and the other Dragons of the Far East. Limited exports to dollar markets imposed in turn a constraint on imports of western technology. In the case of the FSU, these imports were also constrained by large food imports, this being the effect of a failed policy to improve Soviet agriculture through massive investments in state-owned farms. The Central and East European socialist countries faced also the reality of declining Soviet supplies of energy and the prospect of having to obtain oil in the dollar market. Low innovation and poor exports were again emerging as binding constraints, threatening to halt or indeed already halting further development.

The analysis of supply and demand shocks during the transition to a market economy is a separate subject. (My brief and preliminary treatment of it is offered in Gomulka, 1991). But whatever analysis one can offer, the experience of reforms so far indicates that cumulative losses in GDP are likely to be in the region between 10 and 30%, which would make them comparable to the losses suffered by Western economies during the Great Depression of the 1930s.

CONCLUSION

Soviet type socialism proved to be a viable economic system. More than that, it proved capable of permitting, at low and medium levels of development, internationally high rate of growth. However, the system proved incapable of bringing the socialist economies close to the world's technology frontier. The transition to a market-based system is taking place in crisis conditions, has been ill-prepared, and is likely to be much longer and more costly than anticipated. But there are good reasons to think, as outlined by Rostow (1990), that the reforms will lead to recovery in the second half of the 1990s and, indeed, enable

Central and Eastern Europe and the countries of the FSU to nearly close the technological gap with the TFA by the middle half of the 21st century.

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