慶應義塾大学学術情報リポジトリ
Keio Associated Repository of Academic resouces

Title	SOURCES OF GROWTH AND INEFFICIENCY IN EASTERN EUROPE: The Bulgarian Experience
Sub Title	
Author	FEIWEL, GEORGE R.
Publisher	Keio Economic Society, Keio University
Publication year	1977
Jtitle	Keio economic studies Vol.14, No.1 (1977.) ,p.1- 30
JaLC DOI	
Abstract	
Notes	
Genre	Journal Article
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=AA00260492-19770001-0001

慶應義塾大学学術情報リポジトリ(KOARA)に掲載されているコンテンツの著作権は、それぞれの著作者、学会または出版社/発行者に帰属し、その権利は著作権法によって保護されています。引用にあたっては、著作権法を遵守してご利用ください。

The copyrights of content available on the KeiO Associated Repository of Academic resources (KOARA) belong to the respective authors, academic societies, or publishers/issuers, and these rights are protected by the Japanese Copyright Act. When quoting the content, please follow the Japanese copyright act.

SOURCES OF GROWTH AND INEFFICIENCY IN EASTERN EUROPE:
The Bulgarian Experience

GEORGE R. FEIWEL

I

In the post-World War II period a high premium was placed on the rate of economic growth. But a high growth rate of output (aggregate or per capita) can hardly be the sole desideratum; nor is maximization of the growth rate a sensible aim of economic policy. The highest attainable growth rate cannot be identified as the touchstone of economic progress. A higher annual growth rate is not necessarliy preferable to a lower one, if only because it might have been achieved at the detriment of the long-term growth rate. If a country outperforms another or registers one year a higher growth rate than that recorded in the previous year, these are not sufficient indications of improvement. The growth rate as such is essentially a quantitative measure of economic change that understates the critical and refractory qualitative dimensions.

There are different ways of achieving identical growth rates. These ways are important for society not only because they bear on working and living conditions at a given time, but insofar as they affect the will to produce, creativity, and future knowledge and skills, these ways also influence future growth rates and living standards. Certain ways may tend to produce transitory, high growth rates, but they may be particularly destructive to the human element—an indictment against them not only on moral but also on economic grounds. There are indeed ways of increasing output that may be economical (from the standpoint of efficiency), yet are reprehensible in terms of widely held human values. It might be advantageous to forfeit higher growth rates for the sake of improving the quality of life, for more welfare-oriented output composition, and for more harmonious and sustained growth.

As shown authoritatively by Simon Kuznets, a distinctive characteristic of modern economic growth in industrialized capitalist economies is that the high growth rates of per capita national output were accomplished primarily by improvements in quality—and to a much lesser extent by increased quantity—of inputs; that is, essentially by a rise in productivity traceable to rapid advances in technical, organizational, and managerial know-how. Thus the high rates of technical advance and efficiency have been partly instrumental in maintaining relatively modest shares of capital formation and high shares of consumption in national product.[1] By contrast the very impressive growth rates of Soviet-type economies (STEs) have been accomplished primarily by growing quantities of inputs, with disappointing increases in productivity.

[1] S. Kuznets, *Modern Economic Growth* (New Haven, 1966).

It is hazardous to make comparisons particularly when a host of various factors is at work. However, some striking similarities between the STEs and Japan may be noted: Both succeeded in recording exceptionally high growth rates, both channeled a relatively high share of GNP to capital formation, and both gave priority to growth promoting activities. Differences were many. Japan exploited energetically the advantages of backwardness; its investments embodied primarily creatively adapted superior foreign technology. The Japanese exhibited a strong entrepreneurial spirit. Government policy and flexible working arrangements facilitated adjustment to change and a forceful penetration of foreign markets. The Japanese were phenomenally successful in extracting more marketable output out of every unit of labor and capital combined. The STEs failed miserably in all these areas where the Japanese have been so successful.

Since the early 1960s the STEs' growth momentum and rate of increase of productivity have flagged. Growth can no longer be propelled by relying on increasing commitment of resources due to the relative exhaustion of resources and to the proliferating competitive claims on them. More recently there have been disquieting signs about the continuation of Japan's success story. It appears that to some extent the remarkable Japanese and STEs' growth momentums were facilitated by "transitory" opportunities. In Japan the advantages of backwardness are receding, labor is becoming more demanding, and the need to improve housing and public services can no longer be postponed. Similarly in the STEs increasing attention has to be paid to the worker-consumer, limiting the share of GNP diverted to capital formation. However, aside from other possible improvements, the STEs still have a vast source of potential growth in better allocation of the investment fund, in improvement of utilization of existing capacity, and in borrowing and adapting foreign know-how—if only they could devise the means of doing so effectively.

In the last decade or so the STEs have sought an additional source of growth in reform of the functioning system. The institutional framework of a social system is a fundamental component of its economic dyanamics. Among the multiple determinants of the rate and pattern of economic activity, the economy's functioning system is a weighty but not necessarily overriding factor. The efficacy of the working arrangements for resource allocation and the behavior of the microunits are not independent of macroeconomic conditions. Working arrangements are merely means for realizing given ends. The merit of such arrangements can be assessed only in the light of how well they perform this function. The end-means structure requires a congruence among the functioning system and the other components of the economic process. Rationality requires that dissonance among the components of the economic process be removed by modifying the discordant components to satisfy the conditions of consistency and efficiency. Efficiency is a stronger requirement than consistency and coherence. Mobilization and steering of resources into appropriate activities and keeping the production flows and the economy moving are signs of economic vitality; economic efficiency means

employing these resources to obtain as much output as possible from them by applying the best available techniques. The choice of an appropriate growth rate, structure, techniques of production, and of better working arrangements should jointly produce better results than those that could be achieved by attacking the economic riddle on one front only.

Theoretically the centrally planned economy provides opportunities for a wide gamut of arrangements for resource allocation, of which the STE is only one alternative. "Planning or the market" as diametrically opposed instruments of resource allocation is largely an anachronism. The formidable problem is the proper blend of plan and market to achieve most effectively the aims of economic activity, however determined. But given institutions are not set up only because they are the best "production techniques," but also because decision makers have usually strong preferences for specific institutional arrangements. Aside from the "folklore" of these arrangements and specific vested interests for maintaining them, rigidities develop so that even intolerably ineffective institutions tend to perpetuate themselves. Redesign of the system or its components meets with formidable obstacles. On the other hand, when the economy is under stress, there is often a tendency to tinker with separate components of the system, which could remove some dissonance, or could introduce new inconsistencies. These might later be eliminated by reverting to the old ways of doing things, or by progressive changes in the other components.

In STEs conformism to the notorious "command system" is also an anachronism. At the present juncture the focus is on different ways of organizing the socialist economy. Yet in preactice the STEs have evinced remarkable resistance to fundamental organizational innovations. The substance of some of the practical changes is often exaggerated. In fact, notwithstanding the significance of their differences, the various reforms implemented in practice at different times in different STEs have been no more than bungling half-measures. We have yet to see a welfare-oriented, consistent, and coherent reform of the functioning system in a STE, accompanied by a revision of the growth strategy, and by a system of checks and balances to curb the omnipotence of the system's directors. Above all economic reform has to embrace the whole gamut of economic activity and to harmonize all segments of activity. The STE system has been challenged for its failure to live up to the ideals of socialism and for the dehumanizing effect of the industrialization rush. To qualify as reforms, system changes should palpably improve the daily conditions of life and work of the mass of population; they should stimulate the willingness to produce and innovate at all levels; and they should profoundly affect the structure of wants and activate an endogenous mechanism for their satisfaction.

II

After the end of World War II Bulgaria, together with Rumania, was the least developed country to come within the Soviet orbit, but unlike Rumania it was

poorly endowed with natural resources. Bulagaria had a relatively ample labor supply, with very low living standards. The Soviet mode of development and working arrangements were vigorously adopted, but in contrast to the other STEs, from the outset Bulgaria has paid more attention to the development of agriculture. Bulgaria has one of the highest investment rates in the world, characterized by the abruptness of the take-offs and the velocity of investment expansion, and registers impressive growth rates as measured by the traditional criteria. The rapidity of the transformation and the scale of the structural break were remarkable, but at high material and non-material costs whose legacy haunts the central planner (c.p.) to this day. The economic costs were mitigated by what appears to have been generous treatment of Bulgaria by the USSR (and under its aegis by some of the other STEs), so that rather than being exploited, Bulgaria was to some extent the "exploiter." This was partly due to the historical umbelical cord between Bulgaria and Russia and to the strategic role of Bulgaria within the Balkans. Also, both in its domestic and foreign policy Bulgaria has been one of the most subservient and docile satellites of the USSR.

In the first half of the 1960s Bulgaria, like other STEs, flirted with the possibility of market-type reforms. The reform blueprint issued in 1966 was in the "quasi-profit-oriented" family. The proposed system was perhaps closest to that tried at that time in Czechoslovakia, particularly as regards the three-tier price construct (which is also a feature of the Hungarian reform) and the concept of gross income, borrowed and adapted from Yugoslavia. In the mid-1960s from the vantage point of STE reform blueprints, the Bulgarian one could probably be classified with the more advanced (Czechoslovakia) as contrasted with the more orthodox solutions in Poland, the German Democratic Republic (GDR) and the USSR. However, it was still far behind the much bolder solutions in Hungary and ostensibly less reformist than the Yugoslav system.

However, the system outlined in the Bulgarian blueprint was never fully implemented. Some aspects were tried on an experimental basis from 1964 to 1967. By 1968 a counterreform set in which culminated in the considerably recentralized system of the 1970s. This new system has stripped enterprisses even of the prerogatives they enjoyed in the prereform period and reduced them to the role of subsidiaries (working on internal cost accounting) of very powerful associations. The latter (numbering about 64 in 1970) were set up as legal entitites—incorporating integrally enterprises with similar production profile and research and development (r&d) institutes, design offices, and foreign trade enterprises—responsible for the financial results (profit) of the group as a whole.

Nolens volens the designers of the system have created a set of predesigned monopolies. The retort that monopolistic behavior is attenuated by the very limited role played by the market is largely misleading. Although the association has no price-making prerogatives to bamboozle the consumer, it does have a relatively wide gamut of other possibilities; *inter alia* manipulation of the product-mix in favor of plan-satisfying output (restricting output of low pay-off), deterioration of

output quality, neglect of servicing and information about products, and decisions about delivery dates. Notwithstanding the state-created pressures for implementation of technical progress, there is neither strong compulsion on the association to do so, nor sufficient incentives to generate innovation from below. This is primarily because the "revealed planner's preferences" indicate continuous stress on volume of output and intolerence for qualitative improvements that might infringe on the short-term growth rate of output. Plan fulfilment of primarily quantitative production continues to be the key performance criterion—even if it is not so on paper. With the existing seller's market, which is not about to be replaced by a buyer's market under the high-pressure economy the system's designers have not created any compelling economic pressures for the producers to adapt to buyer's demand. On the contrary, by creating a powerful network of monopolies the disigners have inured the producer even more from the influence of the consumer than he was in the traditional system.

III

Despite the tinkering with the system of functioning and the partial remedies, as the Bulgarian economy entered the Sixth Five year plan (FYP) (1971–75), it was increasingly beset by problems. Some of them were system-made, reminiscent of those that prompted the leadership originally to consider reform—but with time and the increasing complexity of the economy they had become more acute. Others were definitely attributable to the growth policy whose basis did not undergo fundamental changes through the years. These problems involved primarily the system's dynamic and static efficiency. Despite the growing pressures for "more scientific" central planning, and use of mathematical models, sectoral balances, forecasts, etc.; once again the 1971–75 FYP proved unrealistic.

In the first half of the 1970s evidence of deteriorating performance was mounting. Something had to be done to cope with the rankling situation. The intensity of the problem is not easy to discern, but it appears that the taut Sixth FYP had to be shifted midstream, due to the usual accumulated disproportions, growth barriers, and ceilings; with nervousness at the center in attempting to shift priorities to redress the dislocations. The manifest problems and c.p.'s pattern of response were not much different from past experience (and that of other STEs). The seriousness of the problems is indisputable. The differences of opinions center primarily on attributing the proximate causes; diagnozing the ills; and prescribing the cures. The point is that a wrong or tendacious diagnosis will be followed by the "wrong" cures; i.e., if the c.p. does not attribute the shortfalls in performance primarily to the overheated economy, he will merely resort to some ad hoc responses to bottlenecks and half-measure organizational improvements to attempt to put into motion some "intensive growth" factors, rather than revert to a resolute slow-down of the growth momentum which would enable these intensive factors to take root and flourish, and in the end would result in higher and more sustained growth.

The c.p.'s nervousness half-way through the Sixth FYP was not caused so much by the economy's failure to measure up to the "new" qualitative performance indicators, as by the deteriorating performance in terms of traditional quantitative criteria. Economic performance was disappointing not only in comparison with promulgated targets, but with the past growth momentum, and with growth dynamics within the Council for Mutual Economic Assitance (CMEA). It matters not that economic performance cannot be evaluated exclusively on the basis of growth dynamics and that the official statistics do not fully represent the velocity of indices, but that the c.p. relies on these variables and they affect his behaviour and shifts in policy.

To recall the aggregate statistics do not fully portray the dimensions of the problems and average rates of growth conceal intra-period fluctuations. Growth rates depend on the level achieved and unsatisfactory performance depresses the base. Aggregates really have to be broken down into components to perceive the imbalances and bottlenecks which proliferated from one branch to another. Nor do the statistics fully reflcet the benefits and costs of growth. Also variances between planned and reported data are not overly meaningful since the final plan is often tailored to the report and vice versa. Moreover, short-term statistics do not reflect lags. And, above all, qualitative performance is not fully depicted in quantitative indices.

As a background to the problems encountered in 1971–75, a brief retrospect on the preceding FYP is in order. Some of the features of the 1966–70 plan and its fulfilment were:

1. In comparison to 1961–65 FYP, performance in terms of average annual growth rate of national income improved, and was still better than in any other CMEA country, but it deteriorated in terms of the growth rate of industrial output and was outdone by Rumania. The accumulation rate rose from 27.5% in 1960 to 28.3% in 1965, jumped to 34.2% in 1966, and remained above 30% until 1970. The consumption fund remained stagnant in 1968 and declined in 1970. The rate of growth of fixed investment jumped from 8.7% in 1961–65 to 12.5% in 1966–70 (only exceeded by that in 1956–60, 18.3%).[2]

2. The industrial investment share grew from 44.8% in 1965 to 47.8% in 1969—the highest thus far. Within that the primary beneficiaries were the chemical, fuels, machinery, and metallurgical industries.[3]

3. From 1965 to 1971 there was a considerable restructuring of industry, with the share of the fuels industry increasing from 3.8 to 6.1%, ferrous metallurgy from

[2] *Rozwoj gospodarczy krajow RWPG 1950–1968* (Warsaw, 1969), pp. 46, 62; *Polska wsrod krajow europejskich 1950–1970* (Warsaw, 1971), p. 34; *Rocznik statystyczny 1966* (Warsaw, 1966), p. 602; *Ibid.*, 1967, p. 630; *Ibid.*, 1970, p. 600; *Ibid.*, 1971, p. 660; *Ibid.*, 1972, p. 626; *Ibid.*, 1973, p. 653; *Ibid.*, 1974, p. 652; *Ibid.*, 1975, p. 566; *Statistical Yearbook of Bulgaria 1971* (Sofia, 1971), p. 58; M. Golebiowski and B. Zielinska, *Gospodarka planowa*, No. 4, 1968, pp. 1–6, *Gospodarka planowa*, No. 5, 1972, pp. 261–65.

[3] *Statistical Yearbook of Bulgaria 1971*, p. 51; *Rocznik statystyczny 1975*, p. 571; *Rozwoj gospodarczy krajow RWPG 1950–1968*, p. 64.

2.2 to 3.6%, machine-building from 16.5 to 22.2%, and chemicals and rubber from 4.7 to 8.4%. The largest growth rates of output were registered by petroleum, ferrous metallurgy, machine-building, and chemicals and rubber.[4]

4. The growth of real incomes throughout that period was largely due to a considerable increase of nominal wages in primary industries which went into effect on October 1, 1966 and at the beginning of 1967—hence at the early stages of the period. In electric power, mining, ferrous and non-ferrous metallurgy, timber, etc. the average increase for workers was 14.5% and for managerial and engineering personnel 20%. The increase for construction workers averaged about 21.3%.[5] From 1965 to 1969 the average annual nominal wage increased from 1,109 leva to 1,402 leva, or by 26.6%. The average annual rate of increase of nominal wages was 6% and real wages 5.4% in 1966–70.[6]

5. The national output-fixed capital ratio deteriorated from 0.69 in 1960 to 0.44 in 1972 and in agriculture from 0.73 to 0.52.[7] There was an overall deterioration in the dynamics of labour productivity. A moderate improvement in the rate of decline of capital productivity was registered, possibly due to delayed commissioning of capacities.[8] But the trend of declining marginal productivity of capital remained a major concern.

In his report about the fulfilment of the 1966–70 FYP, Sava Dulbokov, then Chairman of the SPC, attributed the major difficulties in that period to delays in construction and mastering of capacities and to the wide investment front and large number of unfinished projects. Other contributing factors were waste of raw materials, accumulation of above-norm inventories, poor quality of output, shortages of major consumer goods and shortcomings in trade and services, insufficient expansion of public utilities and housing, and slack efforts in improving planning methods (particularly norm-setting).[9]

The 1971–75 FYP (like those of other STEs) was published only at the end of 1971. Some problems of intra-CMEA coordination were encountered. The publication date almost coincided with the report of the execution of the first year's plan. The poor results achieved in 1971 did not bode well for the execution of the FYP and one might speculate whether some scaling down of FYP targets did not already occur before the plan was finally approved.[10] As usual, the chief aims of the plan were outlined as continued industrialization so that in terms of growth dynamics Bulgaria "will be in a leading position among the socialist countries."[11] Furthermore, "in terms of pace of economic development, during the Sixth FYP

[4] D. Fratev, *Statistika* (Sofia), No. 4, 1972, p. 72.
[5] *Rabotnichesko Delo*, July 30, 1966.
[6] *Statistical Pocketbook 1970* (Sofia, 1970), p. 140.
[7] *Ikonomicheski Zhivot*, August 14, 1974, p. 2.
[8] Cf. United Nations, *Economic Survey of Europe in 1970* (New York, 1971), Part II, p. 117.
[9] S. Dulbokov, *Planovo Stopanstvo*, No. 1, 1972, p. 7.
[10] Cf. I. Iliev, *Naruchnik na Agitatora*, No. 24, 1971, p. 23.
[11] *Ibid.*, p. 4.

our country will be in one of the leading positions in the world."[12] But the Sixth FYP followed a period of overexpanded investment activity, overheating, and manifest growth barriers. The targets postulated for the Sixth FYP were slightly below those for the preceding period. In the preceding FYP 12 to 13 billion leva was to be spent on investment, whereas 20 billion was to be spent in 1971–75.[13] But these figures are not easily comparable as new prices came into effect in 1971. The c.p. expected that the Sixth FYP would be executed by relying primarily on intensive growth factors. "About 95% of growth of national income must be achieved as a result of higher labour productivity." Annually only 4–8% of the increment of national income can be attributed to increased employment. The plan was expected to spur a rise in efficiency and an increase in the rate of utilization of existing capacity. As a result the planned growth "will be achieved with a relatively smaller increase in the investment volume than in the Fifth FYP."[14]

1. Whereas the reported figures for the 1966–70 plan indicated that Bulgaria shared with Czechoslovakia the first place in growth performance, during the Sixth FYP, the annual reported rates of growth of national income were below the planned annual average, below the rates recorded in Rumania and Poland, and also below the annual averages recorded in 1966–70. By 1973 performance had rallied somewhat in terms of original plan and past performance, but this is not a representative year as the original plan was considerably scaled down in many key activities to relax the accumulated tensions. However, the reported growth rate was still below those of Poland and Rumania. By 1974 a more ambitious plan was postulated, but again unfulfilled, trailing behind Poland and Rumania.[15]

The poor performance of agriculture contributed significantly to the deteriorating economic situation. Whereas the FYP called for average annual growth rates of 3.2–4.0% (3.5% reported in 1966–70), the growth rate in 1971 was only 3.1%, with some improvement in 1972 (4.8%), and again a deterioration in 1973 (3%). But in 1974 agriculture stagnated, supposed to be made up only in 1975 with the aid of grain and fodder shipments from the USSR, to come to about 3.5% as the average for 1971–75.[16]

[12] Dulbokov, *op. cit.*, p. 6.

[13] Iliev, *op. cit.*, p. 3; *Rabotnichesko Delo*, December 17, 1971, p. 2; *Rabotnichesko Delo*, November 26, 1966.

[14] Iliev, *op. cit.*, p. 3; cf. Dulbokov, *op. cit.*, p. 12.

[15] Golebiowski and Zielinska, *Gospodarka planowa*, No. 4, 1968, pp. 1–6, *Gospodarka planowa*, No. 5, 1972, pp. 261–65; Zielinska, *Gospodarka planowa*, No. 4, 1967; Golebiowski and Zielinska, *Gospodarka planowa*, No. 4, 1969, p. 5, *Gospodarka planowa*, No. 4, 1970, p. 10, *Gospodarka planowa*, No. 4, 1971, p. 232, *Gospodarka planowa*, No. 4, 1973, p. 241; *Gospodarka planowa*, No. 4, 1974, p. 225, *Gospodarka planowa*, No. 4, 1975, p. 263.

[16] Zielinska, *op. cit.*, p. 2; Golebiowski and Zielinska, *Gospodarka planowa*, No. 4, 1968, pp. 1–6, *Gospodarka planowa*, No. 5, 1972, pp. 261–65, *Gospodarka planowa*, No. 4, 1969, p. 3, *Gospodarka planowa*, No. 4, 1970, p. 8, *Gospodarka planowa*, No. 4, 1971, p. 234, *Gospodarka planowa*, No. 4, 1973, p. 239, *Gospodarka planowa*, No. 4, 1974, p. 229, *Gospodarka planowa*, No. 4, 1975, p. 271.

2. The reported figures for the 1966–70 plan show that in terms of average annual growth rates of industrial output, Bulgaria was only bested by Rumania, but considerably exceeded the other CMEA countries. In the first two years of the 1971–75 plan these rates were below the average annual planned and below that reported for the preceding FYP. By 1971 only Rumania was ahead of Bulgaria, but by 1972 Bulgaria fell behind both Rumania and Poland. Despite the increased growth rates in 1973 (slightly above the average annual planned for the period), Bulgaria still remained behind Rumania and Poland. The planned growth rate for 1974 was again ambitious and unfulfilled, trailing both Poland and Rumania. It was expected that by 1975 industrial output would have increased by 55.1% over 1970—i.e., almost at the minimum postulated and considerably below the trageted level and that reported for the Fifth FYP.[17] The estimated average annual rate of growth was 8.7% (9.8% planned), behind both Rumania and Poland. On the whole, the c.p. was haunted by the deteriorating position of Bulgaria in terms of growth rates of national income and industrial output vis a vis the other CMEA countries.[18]

The 1971–75 FYP stipulated that "decisive priority would be accorded to the sectors upgrading the technical level of production."[19] An attempt was to be made to shift allocations in favour of the power and raw materials base, and of machinery. The largest beneficiaries of the investment effort were to be fuels and power, machine-building, and the chemical industry (continuing along the lines of the previous FYP), followed (with a wide gap) by building materials, food processing, and ferrous metallurgy.[20] Throughout the period the largest rates of increase of output were to be in petroleum (100%), machine-building (over 100%), chemicals (over 100%), ferrous metallurgy (95%), building materials (77%) and electric power (59%).[21] Significantly in the consumers' industrics the plan called for the increase of output to be accomplished primarily out of existing capacities. Only in the later years would more capital be allocated for reconstruction, modernization, and expansion of these industries.[22]

Within machine-building priority was to be accorded to "highly productive machines that would accelerate technical progress and ensure effective exports," with particular stress on computers, automation equipment, electrical engineering products, metal-cutting machinery, and shipbuilding.[23] By 1975 the share of machinery in total exports was to reach 43%.[24] In the comparisons within CMEA

[17] Iliev, *Rabotnichesko Delo,* October 30, 1974, p. 2.

[18] Zielinska, *op. cit.,* p. 1; Golebiowski and Zielinska, *Gospodarka planowa,* No. 4, 1968, pp. 1–6, *Gospodarka planowa,* No. 5, 1972, pp. 261–65, *Gospodarka planowa,* No. 4, 1969, p. 1, *Gospodarka planowa,* No. 4, 1970, p. 6, *Gospodarka planowa,* No. 4, 1971, p. 232, *Gospodarka planowa,* No. 4, 1973, p. 238, *Gospodarka planowa,* No. 4, 1974, p. 226, *Gospodarka planowa,* No. 4, 1975, p. 268.

[19] Dulbokov, *op. cit.,* p. 9.

[20] *Rabotnichesko Delo,* December 17, 1971, p. 2.

[21] Dulbokov, *op. cit.,* p. 9.

[22] M. Dakov, *Planovo Stopanstvo,* No. 9, 1972, p. 107.

[23] *Rabontnichesko Delo,* December 17, 1971, p. 2.

[24] I. Ivanov, *Vunshna Turgoviya,* No. 10, 1972, pp. 2–6.

TABLE I. PERCENTAGE ANNUAL GROWTH RATES OF MACHINE-BUILDING IN CMEA COUNTRIES, 1966–75

Countries	Average 1966–70	Average 1971–75 Plan	1971	1972	1973
Bulgaria	15.3	16.5	15.0	13.9	18.6
Czechoslovakia	5.0	7.7	8.0	8.3	8.3
GDR	5.0	n.a.	6.0	17.0	8.0
Hungary	5.6	5.7–6.0	8.0	5.5	5.6
Poland	6.9	10.55	12.4	13.1	15.0
Rumania	5.8	11.5–12.0	16.0	15.5	20.7
U.S.S.R.	5.3	11.2	11.0	11.7	12.0

Sources: I. Ivanov, *Vunshna Turgoviya*, No. 10, 1972, p. 2; *Statisticheski Yezhegodnik Stran-Chlenov Sovieta Ekonocheskoy Vzaimopomoshchi 1973*, (Moscow, 1973), p. 61; Golebiowski and Zielinska, *Gospodarka planowa*, No. 4, 1974, p. 227.

the rates of growth of machine-building are an important performance criterion for the various c.p. In the past, starting from a low base, Bulgaria reported relatively high average annual growth rates of machine-building (e.g., 16.4% in 1950–60 and 18.3% in 1961–65), but its targeted rate for the Sixth FYP was considerably above that reported for the preceding FYP and those planned by the other CMEA countries (Table 1). The performance in the first two years of the plan was considerably below the average annual target, and Bulgaria was bested by Rumania in 1971 and by the GDR and Rumania in 1972. With the shift of the plan in 1973 growth of machine-building picked up momentum, but still trailed behind Rumania—probably a matter of considerable concern to the c.p.

Already in 1971 the production targets of some key products (iron, steel, rolled metals, cement, internal combustion engines, etc.) were not met.[25] On the whole the growth rates of the basic heavy industry branches were underfulfilled.[26] During 1971–72 growth rates of imports exceeded those of exports.[27] This indicates not only growing strains in the balance of payments (particularly with the West), but also the increasing tensions and overheating of the economy.

1973—the half-way house of the FYP—was the year of the shift, when the tensions built up thus far due to the overextended investment front were being relaxed and greater attention was being paid to the consumer. "The successful fulfilment of the FYP as a whole depends largely on the susscessful filfilment of the 1973 plan and counterplans."[28] Whereas total output of industry was to rise by 9.9%, that of light industry was to increase by 10.1%, but high growth rates were also stipulated for some key heavy industry branches (e.g., petroleum 11.6%,

[25] Iliev, *op. cit.*, p. 23.

[26] *Rabotnichesko Delo*, Feburary 2, 1972, p. 2.

[27] *Rocznik statystyki miedzynarodowej 1973* (Warsaw, 1973), p. 292.

[28] N. Zhishev, *Ikonomicheski Zhivot*, February 14, 1973, p. 1; cf. S. Todorov, *Stroitelstvo*, No. 3, 1973, p. 1.

chemicals 22.0%, machine-building 19.2%, textiles 6.9%, clothing 19.0%, leather and footwear 5.6%, glass and porcelain 10.4%, and food-processing 5.9%). Of course, a relevant question was how much output of heavy industry was to consist of durables. The 1973 plan anticipated sharp increases in output from increase in the rate of utilization of existing capacities, especially in the raw materials branches.[29]

Again the output of some key products was underfulfilled (especially in cellulose-paper, organic chemistry, plastics, cement, construction materials, and processed foods). During its course the 1973 plan was drastically revised and targets for chemical industry were scaled down. The poor showing of the chemical industry was viewed with grave concern in view of the priority accorded to this industry and the immense resources poured into it.[30] The planned growth rates of machine-building were not achieved. In 1971–72 the rates of growth of light industry were much below the overall rate (4.7 and 6.7% respectively), but the increased rate planned for 1973 was not met and was still below the overall rate reported (9.1 and 10.6% respectively).[31] Hence the planned shift in favour of consumer-oriented industries did not fully materialize and plan execution again bore out the revealed preferences of the c.p. in favor of the producer goods sector.

By 1974 the c.p. was eager to recuperate his losses, and the targets for that year were raised considerably.[32] Light industry relapsed to its previous status. The 11% rate of growth of industrial output concealed some significant disproportions. Whereas the chemical industry's output was to increase by 27% and machine-building by 21%; the light and food industry's output was to grow by 8.3 and 6.9% respectively. Again the plan was underfulfilled in almost all areas. National income increased by 7.5% (10% planned) and industrial output by 8.5%. Output of chemical industry rose by only 14.5%, machine building by 13.6% textiles by 4%, garments by 7.4%, leather and footwear by 4.5%, and food processing by 4.4%.[33]

3. The extent of the 1971–75 FYP's reliance on growth of productivity is indicated in the postulation of the highest average annual rate of growth of productivity in comparison to other CMEA countries. The report for 1971 was below plan for that year and the average annual planned. Bulgaria was bested in this index by Czechoslovakia and the U.S.S.R. The 1972 growth rate was even slower, with higher figures reported in Hungary, Poland, and Rumania. In 1973 when the planners' tensions were somewhat relaxed, labor productivity increased and almost reached the average annual planned, but still with Rumania and Poland showing higher indexes. The relatively better performance in 1973 probably influenced the more sanguine 1974 plan, badly underfulfilled. The estimated average annual increase of labor productivity in 1971–75 (6.5%) was way below plan (8.1%), and

[29] Dulbokov, *Rabotnichesko Delo,* December 19, 1972, p. 2; I. S. Takchiev, *Planovo Stopanstvo,* No. 1, 1973, p. 13.

[30] D. Popov, *Finanse i Kredit,* No. 1, 1973, p. 8.

[31] Golebiowski and Zielinska, *Gospodarka planowa,* No. 4, p. 227.

[32] *Rabotnichesko Delo,* February 12, 1974.

[33] *Statisticheski Izvestiya,* No. 12, 1974, pp. v–vii

matched Hungary, but trailed both Poland and Rumania. It was expected that in 1975 about 86% of the increment of industrial production could be attributed to increased labor productivity, as against the 95% originally planned.[34]

4. The share of accumulation in national income has fluctuated considerably. In the 1971–75 FYP this share was to moderate somewhat, with the reported figures 24% in 1971, 27% in 1972, and 28% in 1973.[35] The Sixth FYP started out with a relatively low increase of investments, which shot up in 1972. In 1973 the tensions built into the plan by the high investment rate were supposed to be relaxed, and instead of the 8% planned increase, investment grew by only 6.9%. The considerable increase in the 1974 plan reflects the lower starting point and the pressing needs to complete projects in progress. Again that was underfulfilled by four percentage points. The estimate of the average annual rate of growth of investment was 6.4% (5.9–7.0% planned). On the whole the rate of increase of investment was higher in Czechoslovakia, Poland, and Rumania.[36] As could be expected the investment program was revised many times and some of the figures are irreconcilable. They rather indicate the ferment in this volatile activity than provide a clear-cut quantitative picture.

The 1971–75 FYP relied significantly on increased investment efficiency, which did not materialize—but in Rumania the Incremental Capital Output Ratio (ICOR) fell in comparison with 1965–70. According to provisional estimates, whereas the average annual gross ICOR in Bulgaria for 1966–70 was 4.1%, the Sixth FYP postulated 3.9% and the reported data indicated 4.8% in 1971, 5.1% in 1972, and 4.0% in 1973.

The accent in the plan was on achieving higher returns on investments by means of improving the structural allocation; concentrating resources; diffusing technical progress; reducing gestation periods; improving performance at drafting, execution, and fruition stages; and allocating larger funds to modernization. Stress was laid on labor-saving investments, modernization, automation, and replacement. Priority was to be accorded to completing investment in progress and to those whose commissioning would provide the economy with the needed goods during the FYP.[37]

In 1971 the plan for investment outlays was exceeded.[38] In 1972 this plan was exceeded by 200 million leva, while the construction plan was underfulfilled—suggesting considerable overheating and tensions in this crucial area.[39] From the

[34] Iliev, *Rabotnichesko Delo*, October 30, 1974, p. 2.

[35] *Rocznik statystyczny 1972*, p. 626; *Ibid.*, 1973, p. 653; *Ibid.*, 1974, p. 652.

[36] Zielinska, *op. cit.*, p. 4; Golebiowski and Zielinska, *Gospodarka planowa*, No. 4, 1968, pp. 1–6, *Gospodarka planowa*, No. 5, 1972, pp. 261–65, *Gospodarka planowa*, No. 4, 1969, p. 6, *Gospodarka planowa*, No. 4, 1970, p. 11, *Gospodarka planowa*, No. 4, 1971, p. 236, *Gospodarka planowa*, No. 4, 1973, p. 242, *Gospodarka planowa*, No. 4, 1974, p. 231, *Gospodarka planowa*, No. 4, 1975, p. 267.

[37] Dulbokov, *Planovo Stopanstvo*, No. 1, 1972, p. 13; *Rabotnichesko Delo*, December 17, 1971, p. 2.

[38] *Rabotnichesko Delo*, February 2, 1972, p. 2.

[39] *Rabotnichesko Delo*, Janurary 30, 1973.

very beginning of the Sixth FYP enormous difficulties were encountered in construction. This was a legacy of the previous FYP which had left an extended construction front.[40] Serious difficulties were encountered in agriculture and food industry building and commissioning new plants in 1971. Aside from tensions on the construction front and shortcomings of building organizations, the investors were blamed for "pushing" their projects into the plan, without even having the initial preparation. In addition, the delivery of equipment was often delayed. The design organizations were not supplying adequate documentation. Finally, both the final design and executed projects were much more expensive than the cost estimate incorporated in the plan.[41]

The enormous delays in commissioning capacities in 1971-72 (4.8 billion leva-worth of fixed assets commissioned as against 6.8 billion planned) were threatening the entire FYP. In 1972 the plan for commissioning capacities was fulfilled by 72.8%. At the end of 1971 unfinished construction was 110.4% of completed, and at the end of 1972 the figure was still higher.[42] Whereas the plan had called for 35% of investment to be allocated to modernization, in 1972 only 18% of investment funds were spent for that purpose.[43] Towards the end of 1972 emergency measures were being taken to complete the most important projects in construction. Other projects were temporarily halted and manpower and materials reallocated to finish the crucial projects. The completion of a number of electric power and raw materials producing plants, whose output was envisaged in the plan, was delayed.[44]

Early in 1973 a special conference was called to discuss the "serious weaknesses and alarming state of certain key construction projects." Premier Stanko Todorov laid the chief blame on suppliers of machinery and equipment, designers, investors, construction organizations, etc. He also blamed the planning practice whereby new projects are "forced" into the plan, with minimum resources allocated for the first year, thereby extending the construction front. This deeply rooted practice contributes to cost underestimation, substandard project designs, extensions of gestation periods, lack of synchronization between construction and supply of equipment, etc.[45] There was general misanagement in investment planning and construction. Considerable shortages of material and labour resources were encountered, while delivered equipment stood idle at the construction site and was wasted. The Ministry of Heavy Industry—the main investor of key projects—was blamed for failing to coordinate design, construction, and procurement of equipment for its projects. The construction industry was censured for poor organization of construction and inefficient use of the available labour force. Despite the labour shortages in this field, the planned figures were exceeded, and the

[40] *Tekhnichesko Delo,* February 16, 1971, p. 1; *Ikonomicheski Zhivot,* February 13, 1969, p. 1; E. Sibinov, *Ikonomicheski Zhivot,* December 26, 1968, p. 1.

[41] D. Spasova and N. Zagorsky, *Kooperativno Selo,* March 14, 1972, pp. 1–2.

[42] S. Stamenov, *Stroitel,* March 28, 1973, p. 1.

[43] *Rabotnichesko Delo,* March 28, 1973.

[44] S. Kolarov, *Zamedelsko Zname,* October 12, 1972, pp. 1–2.

[45] *Stroitelstvo,* No. 3, 1973, p. 1.

labour productivity targets were not met. Labour turnover was very high.[46] The construction industry was backward and highly material intensive—in the interest of the designers and builders. It was estimated that the construction industry used 100% more steel and cement than acually needed.[47] The relative consumption compared very unfavorably with the USSR.[48]

To mitigate the problems on the investment front, the 1973 plan naturally called for precedence being given to completion of projects under construction, especially for chemical fertilizers, calcinated soda, staple fibers, corrugated steel, ore mining, non-ferrous metals, power, and a number of agricultural and transportation projects.[49] The main stress was on concentration of investment resources on fewer projects.[50] Additional funds were appropriated for reconstruction and modernization.[51] But again the construction plan was underfulfilled and some of the key projects that were expected to be commissioned in 1973 were delayed.[52] The construction of projects for the consumers' industries was particularly behind schedule. Material and labour resources were being shifted away from these projects to those of heavy industry. Modernization investments were also underprivileged.[53] The 1974 plan called for considerable increase of investment, again with the admonition that it be centered on completion of projects and on modernization. But again execution was far from satisfactory. The plan forecast 4,452 million leva allocated to investment, and 3,900 was spent. Fewer projects than originally planned were commissioned.[54] In 1971–74 the total completion-investment outlay ratio rose in countries with decelerating investment push (e.g., Hungary and USSR).[55]

The 1975 plan laid renewed stress on concentration of resources on projects about to be commissioned, on reducing the number of new projects, and on putting finished projects into operation. By 1975 unfinished construction was to be reduced to 79% of the volume of captial investments, whereas the 1971–75 FYP had called for it to be between 55 and 60%.[56] Construction difficulties continued through 1975. There were severe complaints of shortages and "unrithmical" supply of building materials, underinvestment in construction, antiquated construction technology and low worker skills.[59] In fact, as a result of delays in commissioning, fulfillment of

[46] Stamenov, *op. cit.*, pp. 1–2; T. Ivanova, *Ikonomicheski Zhivot*, September 26, 1973, p. 10.
[47] Stamenov, *op. cit.*, p. 2.
[48] *Ikonomicheska Misul*, No. 9, 1974, p. 4.
[49] S. Todorov, *Stroitelstvo*, No. 3, 1973, p. 1.
[50] Dulbokov, *Rabotnichesko Delo*, December 19, 1972, p. 2.
[51] D. Popov, *Rabotnichesko Delo*, December 19, 1972, p. 3.
[52] *Rabotnichesko Delo*, Janurary 31, 1974.
[53] *Kooperativno Selo*, July 27, 1973, p. 2; *Rabotnichesko Delo*, January 31, 1974.
[54] *Rabotnichesko Delo*, February 1, 1975.
[55] United Nations, *Economic Survey of Europe in 1975*, Part I, Chapater 2, Prepublication text ECE (xxxI)/1, Add. 1, p. 50.
[56] Iliev, *Rabotnichesko Delo*, October 30, 1974, p. 2; *Rabotnichesko Delo*, December 17, 1971, p. 1.
[57] *Stroitel*, July 23, 1975; D. Tsvetkov, *Ikonomicheski Zhivot*, May 7, 1975, p. 11; S. Veleva, *Stroitel*, August 27, 1975.

some FYP indexes was endangered. Output of plants that were to have been commissioned was not forthcoming. There were continuous shortages of specific kinds of rolled metals in 1974 and 1975.[58]

5. The rate of increase of real wages in the Fifth FYP was about 5.4%. This rate was not expected to be maintained in 1971–75 which postulated a 4% rate. During the first two years real wages grew very slowly (3% in 1971 and 2% in 1972). By 1973 the rate of growth was still below the low average planned. In 1973 nominal wages increased by 3.8%, but on June 1, 1973 consumers' prices were modified.[59] In 1974 average nominal wages rose by 3% and per capita real incomes by 5%.[60] By 1975 real per capita income was expected to be 33.2% higher than in 1970; i.e., an overfulfilment of the targeted level by 3.2 percentage points and only slightly below the rate of increase reported in the 1966–70 period.[61]

As a result of the poor showing throughout the period there was a proliferation of accusations of mismanagement, slack discipline, etc., together with mounting exhortaions for mobilizing planning and campaigns to make order in the house. Such campaigns are a built-in feature of the Bulgarian way of life, but they are usually on the increase with a deteriorating economic situation, and their intensity is a good indication of the intensity of shortfalls.

In the very first year of the plan complaints were registered about slack discipline and various shortcomings in management. The managers of associations and enterprises were blamed for continuing the practice of storming, so that extreme difficulties were encountered in executing the third and fourth quarter plans.[62] As the performance deteriorated the tenor and intensity of complaints and exhortations grew stronger. By mid-1974 there were continuous and strong complaints about violation of discipline: plan fulfilment reports were falsified with the knowledge and consent of superiors, the plan targets were inequitably distributed, bargaining about targets continued, employment quotas were exceeded and an uneven flow of output persisted.[63] Later a special plenary session of the CC TU was called to overcome difficulties and mobilize workers. An appeal was made to overfulfil the 1974 targets, so that the unsatisfactory performance in the first three years of the plan could be made up.[64]

IV

One of the similarities of STE's reforms has been their advocacy of a shift from extensive to intensive growth and from evaluating performance in quantitative to

[58] D. Asenov, *Ikonomicheski Zhivot*, July 23, 1975, p. 4; T. Tsolov, *Otechestven Fronten*, January 23, 1975.

[59] *Statistical Pocketbook of Bulgaria 1971*, p. 140; A. Szabo, *Kozgazdasagi Szemle*, No. 10. 1974, p. 1184.

[60] *Rabotnichesko Delo*, Febraury 1, 1975, p. 2.

[61] Iliev, *Rabotnichesko Delo*, October 30, 1974, p. 2.

[62] Iliev, *Naruchnik na Agitotora*, No. 24, 1971, p. 24.

[63] *Rabotnichesko Delo*, May 29, 1974.

[64] *Trud*, August 17, 1974.

qualitiative indices. But the crucial questions are whether or not the system has actually adapted itself to such an evaluation in practice and whether under conditions of a sellers' market it can. Some of the primary reasons for the extremely poor Bulgarin qualitative performance are: (1) The high pressure economy stresses maximization of output volume, pushes qualitative improvement of production to the background, and gives rise to inefficiencies and bottlenecks that pervade the system. (2) Postulation of targets tells us something about the planner's intentions, the acceptable rate aimed at, and the recognition of limitations. But the executant knows that not all targets are equally important and he will discriminate among them if they conflict or if their execution is endangered. (3) The system instills the executant with a short time horizon; his primary task is to execute the annual (or even quarterly or monthly) targets. (4) Notwithstanding the rhetoric and exhortations towards greater efficiency, the varous levels of management are still *de facto* judged in terms of physical plan fulfilment. Incentive systems might be tied into qualitative indices, but they are largely counteracted by the severe penalties for not fulfilling the physical plan. (5) Other reasons include the poor technical and organizational level of production, the proverbial inefficiency of organization, bottlenecks in supply, labour laxity, etc.

As a rule, although the quantitative plan indices are usually fulfilled, the qualitative ones are not. For example, in 1970 there were continuing complaints about underfulfilment of such indices as costs, profitability, labour productivity, use of fixed assets, etc. During the first seven months of 1970 returns on fixed productive capital dropped by 0.42 leva in comparison to 1969. The 1969 profitability level was not reached in such important branches as chemistry, metallurgy, machine-building, light industry, transport, and others.[65] Again in 1971 the indices of labour productivity, cost reduction, increased profitability, and product quality were not met.[66] Early in 1970 Zhivkov was reported to have complained that the pace of cost reduction was "extremely unsatisfactory."[67] In 1968 such branches as electric power, cellulose-paper, lumber, etc. reported higher costs than in 1967. During the first nine moths of 1969 the reported cost reduction was about 70 million leva less than during the same period in 1968. In particular, in 1969 costs increased in non-ferrous metallurgy, building materials, textiles, leather, etc. This was attributed particularly to production of semifabricates by final producers, increased wages and premiums, uneven flow of supplies, replacement of unavailable cheaper materials by more expensive ones, increased waste products, lower yields, higher shipping costs, etc.[68]

Three particularly irksome problems were distinguished: the declining efficiency of investments, waste of materials, and underutilization of capacity. For example, until 1960 growth rates of industrial output outstripped those of fixed assets and

[65] I. Vasilev, *Naruchnik na Agitatora*, No. 18, 1970, pp. 17–18.
[66] Iliev, *Naruchnik na Agitatora*, No. 24, 1971, p. 17.
[67] K. Kostov, *Naruchnik na Agitatora*, No. 6, 1970, pp. 14–15.
[68] *Ibid.*, p. 16.

since then the trend has been reversed.[69] Investigations indicated that in Bulgaria, 8 to 27% more material inputs are used to produce given goods than in other countries. Bulgaria ranks very low in effective use of metals and plastics in machine building.[70] Bulgarian-made machinery is generally 5 to 15% heavier than that made elsewhere. This applies also to the goods in which Bulgaria specializes within CMEA. For example, the EV-210 battery operated lift truck is 245 kgs. heavier than its West German counterpart and the Elka-21M electronic calculator is 13 kgs. heavier than its Japanese counterpart.[71] There is considerable overconsumption of fuels at thermal power plants (in the first half of 1975 overconsumption amounted to 73,550 tons of fuel units). About 10% of total production of electric power was lost in the first half of 1975 in transmitting and transforming. (This is more than the entire output of the 630 Megawatt Bobov Dol Plant during that period). These losses were on the ascent in the last few years. The losses were attributed primarily to backwardness of the transmission network, negligence in repair, design errors, and unsatisfactory operation.[72] Computations indicated that a 1% reduction in the use of materials would amount to annual savings of about 190 million leva.[73]

Empirical studies conducted in 1972 showed that in many branches plant and equipment is utilized by only 55–70%.[74] For example, there is considerable underutilization of capacity in ferrous metallurgy, mainly due to poor synchronization of capacities in units that follow each other in the technological process, to increasing obsolescence of certain processes, and to lack of spare parts for maintenance and repair.[75] Large automated power plants stand idle due to delays in fuel deliveries. Railway cars and entire trains are idle for days and weeks. Construction equipment is badly underutilized.[76] In the Madera Truck Plant in Shumen 60–65% capacity was utilized in 1975.[77] It was estimated that if all production capacity had been fully utilized in 1971–72 the additional "financial accumulation" would have amounted to over 600 million leva.[78]

The goal of increasing labour productivity has been at the forefront of the c.p.'s attention for many years, and has assumed particular importance since the early 1960s. Recently, in a keynote speech, Zhivkov emphasized this goal as a means of bridging the gap between Bulgaria and developed industrial nations. Although this could not be accomplished even within a FYP, all efforts were to be directed towards this goal.[79]

[69] G. Atanasova, *Naruchnik na Agitatora,* No. 16, 1968, p. 22.
[70] Kostov, *op. cit.*, p. 18.
[71] *Ikonomicheska Misul,* No. 9, 1974, p. 8.
[72] V. Zanchev, *Ikonomicheski Zhivot,* August 27, 1975, p. 1.
[73] B. Belchev, *Ikonomicheski Zhivot,* June 20, 1973, p. 1.
[74] R. Yanakiev, *Zamedelsko Zname,* No. 10, 1973, p. 3; cf. I. Dimitrov, *Partien Zhivot,* No. 17, 1970, p. 54.
[75] S. Petrov, *Ikonomicheski Zhivot,* June 4, 1975, p. 3.
[76] A. Buchvarov, *Ikonomicheski Zhivot,* April 30, 1975, p. 12.
[77] G. Grigorov, *Trud,* May 29, 1975.
[78] B. Belchev, *Ikonomicheski Zhivot,* June 20, 1973, p. 1.
[79] T. Zhivkov, *Rabotnichesko Delo,* December 24, 1971.

But recent reports indicate a retarding growth rate of labour productivity and unfulfilled plans. For example, in 1969 the construction industry fulfilled the labour productivity plan by 96.5% and the wage plan by 99.5%. The actually worked man-days per worker dropped from 276 in 1968 to 270.8. There was an increase in absenteeism. Work stoppages increased from 12.7 man-hours in 1968 to 14.5 man-hours per worker.[80] In the electric power, non-ferrous metallurgy, timber and woodworking, garments, and food industries the entire increment of output in 1970 was attributed to increased labour productivity.[81] It is interesting to note that together with the underinvested, low-priority light and food industries, one of the lowest increases in labour productivity was reported by the overinvested machine-building industry—on which so much depends to raise the technical standards of the rest of industry.[82] A far more ominous aspect is the declining trend in labour productivity growth. In comparison to the subsequent years, the 1970 results were relatively satisfactory. "Since the end of 1972 ineffective utilization of manpower has become manifest. In some sectors increased output is achieved essentially by increasing the number of workers. For this reason, with the exception of 1971, the growth of industrial output via higher labour productivity decined in 1972 and dropped even further in the first eight months of 1973."[83] The concern with the deteriorating situation was obvious during the National Party Conference in 1974 whose agenda centered on increasing labor productivity as a means of improving Bulgaria's competitive position in foreign markets.[84]

The problems of poor quality of producer and consumer goods have long plagued the Bulgarian economy and have apparently reached intolerable proportions.[85] While the c.p. is not insensitive to poor quality of consumer goods and services, he is especially concerned with the poor quality of capital and other producer goods that affect the growth momentum, and of goods that affect his terms of trade, particularly with the West. In 1973 a number of specialized goods in electrical engineering and electronics was not exported due to poor quality. Apparently low output quality "creates certain difficulties in expanding production cooperation with other CMEA countries."[86] Bulgaria is under increasing pressure from the USSR to upgrade its exports.[87] Also the poor quality of output and repairs became a problem of "exceptional importance because the combat readiness of military units depends on it."[88]

[80] E. Chervenyakov, *Stroit l* February 11, 1970 p. 11.

[81] *Rabotnichesko D lo*, January 29, 1971, p. 2.

[82] The reported rates of increase of labor productivity vary sharply in different branches. For statistical illustration of performance in 1970 see *Rabotnichesko Delo*, January 29, 1971, p. 2.

[83] *Ikonomicheski Zhivot*, October 3, 1961, p. 1.

[84] Zhivkov, *Rabotnichesko Delo*, march 21, 1974.

[85] For example, by mid-1972 it was reported that wholesale trade had a 35 million leva inventory of unsalable goods—to say nothing of retail trade. I. Karabozhikova, *Ikonomicheski Zhivot*, May 24, 1972.

V. Marinov, *Novo Vreme*, No. 8, 1975, p. 28.

Cf. Zhivkov, *Rabotnichesko Delo*, March 21, 1974.

[88] *Narodn i Armiya*, May 1, 1974.

In 1970 a General Directorate on Quality, Standardization and Metrology was instituted. A few months later it was transformed into a Committee. By 1973 an Institute of Quality Standardization and Metrology was set up to provide the Committee with the formulations for quality control. Quality control was promulgated as one of the chief tasks. The persisting complaints are that the cooperators in the production process do not meet quality standards, thus preventing the manufacturer of the finished product from meeting standards, even with the best of intentions. All sorts of manufacturing difficulties are continuously being overcome at the expense of quality. The system of quality control is far from adequate.[89]

Dissatisfaction with the attempted solutions for improving quality was evident from the publication of yet another decree in March, 1975. It stressed again the setting up of "comprehensive standards," and warned of severe punishments for producers of goods that do not meet quality standards. A very telling passage dealt with meeting CMEA quality standards and upgrading Bulgarian quality of goods which as yet do not meet requirements for integrating Bulgaria's economy with the USSR. The decree also specified that "better conditions" should be provided for producers of high quality exportables.[90]

The determination, classification, and computation of "economic intensification" indices is faced with many problems: Besides reporting industrial output by the plant method, the new associations have to report their final product, regardless of the plants that might be classified in different branches or sectors, to avoid double counting. Sufficient information on production capacity, availability, degree of use, and reserves for more effective use are all lacking. In most associations standard costs are still used ineptly, if at all. A serious problem is the determination and reporting of output quality. The range of quality groups is relatively narrow. The classification varies; often a product is classified in a higher group by the producer, only to be reclassified into a lower one by retail trade or the foreign trade unit. There is little reporting on technical progress such as the time required for introducing new products or processes, comparisons with world standards, and the extent to which new equipment is being used. Although calculations of investment efficiency and the recoupment periods have been conducted for some time, there is little verification of the efficiency of projects put into use. The market studies for consumer goods are inept. There is a dearth of statistics on the raw materials base, the structure of above-norm stocks, comparisons of material-intensity of production, etc. Various aspects of profit generation and disbursement are not reported. Price statistics are inadequate. Price indexes, measuring ratios between imported and domestic goods, between industrial and agricultural products, etc. are lacking.[91]

[89] Interview with A. Dimitrov, *Pogled*, January 20, 1972, pp. 1–2.
[90] *Rabotnichesko Delo*, March 3, 1975.
[91] *Statistika* (Sofia), No. 6, 1971, pp. 15–21.

The system continues to promote distortion of information. For example, whatever the difficulties of determing production capacity, the periphery takes advantage of the situation, for it is not interested in revealing such reserves. Then again the rationale of indices expressed in value terms depends on prices and costing methods. A rise (decline) in profits, rate of profit, value added, labour productivity (either in terms of gross output or value added per empolyee) does not necessarily reflect contribution to national income and might be a spurious index of efficiency. It is easier to report a rise in profit by increasing the volume of output, manipulating the product mix and disguised price increases, rather than by exerting efforts to reduce costs, to experiment with new techniques, etc. Intensified pressures promote further distortion of information, higher "reserves" and unreliable fulfilment reporting.

V

If output is reduced to a function of quantity of labour employed and its productivity, the higher the rate of growth of productivity, the smaller the quantity of labour required to achieve a percentage point increment in the growth rate. *Ipso facto*, if a smaller share of the growth of output is to be propelled by gains in productivity, larger employment is required to achieve the same result. It is in this context that the emerging labour barrier adds to the list of pressing problems and restricts maneuverability.[92]

In Bulgaria the traditional sources of labour supply are slowly drying up, with acute exhaustion predicted after 1975. Already during the 1966–70 FYP serious changes in the supply of labour were being felt. Some branches and regions (mainly large urban centers) began to experience some shortages, particularly of skilled specialists and mature men, while there was still considerable disguised unemployment in industry and the potential female workforce was underutilized.[93] In 1974 industry was operating with 2% less labor than planned, construction with 2.9 less, and transportation with 4.4% less. According to demographic computations the increase of working force in the latter 1970s would be minimal and in the period through 1990 an absolute decline was expected.[94]

Since the late 1960s labor problems were increasingly singled out for interfering with production: lack of discipline, high turnover, underutilization of machinery, damages to machinery, poor labor qualifications, and misallocation and underutilization of skilled labor. Widespread alcoholism was implied by the creation of 1,400 so-called sobriety activs in industrial plants since February, 1973.[95] Managers

[92] This problem has other dimensions that cannot be dealt with here. G. R. Feiwel, *Soviet Studies*, July, 1974, pp. 344–62.

[93] For example, in machine-building the share of women in the total work force rose from 18.5% in 1960 to 30.8% in 1967. For statistical data on the labor participation rate of women see T. Danev, *Planovo Stopanstvo*, No. 7, 1969, p. 24.

[94] T. Petev, *Otechestven Front*, October 23, 1970, p. 1.

[95] K. Koparanov, *Trud* March 24, 1975.

were criticized for luring workers from other districts, instead of retaining their own by improving conditions and for enticing labour away from agriculture. Some enterprises underutilized capacity many years after their commissioning allegedly because of the lack of skilled labour.[96] Quite often completion of factory housing lags behind commissioning of productive capacities, so that difficulties are encountered in attracting the labour force. The serious delays in construction were also blamed on labour shortages.[97]

Bottlenecks in some activities are accompanied by disguised unemployment in others; and this seems to be mainly due to system-made incentives to "store labour."[98] Bulgarian economists admit the existence of considerable disguised unemployment in industry and administration and some unemployment persists in certain regions and categories.[99]

A continuing complaint has been the loss due to the high rates of labour turnover. The coefficient of labour turnover of blue-collar workers in industry fell somewhat from 57.8% in 1967 to 56.8% in 1968.[100] However, in 1970 complaints of extensive labour turnover, slack discipline, and low skills continued.[101] In industry alone about half a million workers change jobs annually, with about thirty days lost in the interval between jobs. Nationally the loss is estimated at about 15 million man-days, equivalent to a year's work by 54,000 men.[102] Turnover partly manifests disatisfaction with working conditions. It is due to dispartities in the plant equipment, wages, development prospects, availability of housing and child-care institutions, and the distance between the place of work and the settlement.[103] More strict regulations have tried to cope with the problem. In January, 1970 those who left their jobs were forced to pass through a district bureau that would assign them to areas with greatest labour shortages. However, the decree is not effective simply because it is not adhered to. Management is willing to hire workers even without asking for their work books.[104] Labour turnover is encouraged by managerial tactics to attract skilled workers. A veritable "black market" has come into being.[105]

In the 1970s there was some decline in labor turnover. But in 1973 still 56% of production workers in machine-building changed jobs.[106] The overall share of workers who left their jobs fell from 52.1% in 1970 to 39.3% in 1973 and 34.3% in 1974. This was attributed partly to raising the minimum wage, increasing low

[96] *Rabotnichesko Delo*, December 2, 1972.
[97] Cf. Zhivkov, *Rabotnichesko Delo*, March 21, 1974.
[98] For statistics of above-plan employment see I. Dimitrov, *Partien Zhivot*, No. 17, 1970, p. 55.
[99] A. Dobrev, *Problemi na Truda*, No. 1, 1970, p. 78.
[100] G. Iliev, *Bulgarski Profsuyuzi*, No. 1, 1970, p. 5.
[101] I. Vasilev, *Naruchnik na Agitatora*, No. 18, 1970, p. 19.
[102] G. Iliev, *op. cit.*, pp. 5–6.
[103] Ivanova, *op. cit.*, p. 10.
[104] I. Popov, *Trud*, October 17, 1971.
[105] G. Iliev, *Bulgarski Profsuyzi*, No. 1, 1970, p. 6.
[106] D. Kosev, *Bulgarski Profsuyuzi*, No. 2, 1975, p. 11.

wages, and paying higher wages for work under difficult conditions in 1973–74. These categories of workers were particularly subject to turnover.[107]

Undoubtedly the repeated complaints of workers' idleness, indiscipline, unauthorized absenteeism, and general indifference to work aim at mobilizing further efforts and/or shifting responsibility for the c.p.'s blunders on the workers. But they are also a real problem caused by the general apathy, indifference, and alienation provoked by a highly bureaucratized system—but also a stigma in most modern highly mechanized production processes. The regime's much vaunted commitment to education and the resources poured into it—aside from the indoctrination and propaganda purposes—must have had a palpable effect on improving skills. But it is important to remember that the proletariat is of very recent vintage and of a preponderantly peasant mentality.

There is also the problem of the quality of industrial experience that the former peasants are acquiring in the process of social transformation. Learning takes place during activity through the attempt to solve a problem. Learning associated with repetition of the same problem is subject to sharply diminishing returns. Probably the forces in STEs favoring more or less perpetuation of production and managerial processes empoverish the learning process to the extent that stimulus situations are not steadily evolving.[108]

The low wages and poor working conditions divert workers' attention from performing on the job to "how to play the game" and are likely to have adverse effects on the system's dynamic efficiency. The workers' intensity of exertion is only one dimension of productivity performance. It is difficult to measure the relative slack of STE workers' exertion. The employees seem to manifest a strong preference for leisure rather than hard work partly due to defective incentives.

VI

Supply deteriorates with intensification of industrialization drives and as sequences of technical and organizational barriers are encountered. As construction and production activities are pushed harder, the demand for domestic and imported producer and consumer goods is magnified, not only because more inputs are needed to foster more output and marginal costs tend to rise under conditions of rush—and the process increases purchasing power—but also because producers tend to hoard more stocks against increasing deterioration of supply. Supply from lower stages of production is likely to lag behind, with a tendency for output and investment plans in the basic materials and extracting industries to be underfulfilled and for overfulfilling the production quotas at higher stages of processing. Strong pressures are likely to be exerted on the balance of payments and the difficulties in foreign trade may make it impossible to redress the situation by indirect production.

[107] S. Filev and S. Radev, *Ikonomicheski Zhivot*, June 4, 1975, p. 11.
[108] Cf. K. Arrow, *Review of Economic Studies*, June, 1962, pp. 155–73.

The real remedy is to decelerate the tempo of expansion. Supply improves with a slowdown of the growth rush, not only because demand for inputs lessens, but also because new capacities started during the rush enter the production process.[109]

As Bulgaria became more industrialized, its supply problems intensified. The overdeveloped supply system has a power structure of its own and contributes to may apparent shortages. Contradictory directives impeded planning mainly due to multi-level subordination.[110] There seems to be a pervasive belief that streamlining the cumbersome bureaucratic apparatus by modern organizational and push-button methods will solve the problems, without realizing that the bulk of the supply problems is created by the framework of macro-decisions. The unreliability of supply, shortages, and maldistribution are constantly blamed for plan underfulfilment and undermining the functioning of the "new system."[111] Poor maintenance of machinery, lack of spare parts, and other breakdowns of the supply system continue to be the culprits of many work stoppages and overtime.[112] Hence enterprises persist in hoarding materials, despite the lower profits (higher costs) and consequently lower premiums.

VII

The c.p.'s forcing of machine-building is a major determinant of structural change, of direct and indirect production, and of qualitative performance of the system. It is also a tension-producing factor. The strategic role of machine-building as the hallmark of progress is often emphasized by the c.p. The Sixth FYP postulated that output of machine-building would more than double and "in the next two or three FYP there will be possibilities for machine-building to increase several fold."[113] In 1971–75 machine-building was supposed to "help reequip the national economy with highly productive equipment, accelerate technical progress, and ensure effective exports."[114] Simultaneously, a structural break was to take place. In fact, by 1974 machine-building usurped first place from food-processing as Bulgaria's leading industry, and exports of machinery reached 40% of total exports.[115] The ambition was to establish Bulgaria as an important machinery exporter in the world market.[116] The Soviet economy's requirements were a determinant of the Bulgarian production profile.[117] The clue for pushing exports of machinery so hastily is, *inter alia*, in competition and rivalry with other CMEA members in terms of this important "index of industrialization," which still finds

[109] Cf. M. Kalecki, *Z zagadnien gospodarczo-spolecznych Polski Ludowej* (Warsaw, 1964).
[110] K. Dimov, *Partien Zhivot*, No. 6, 1975, p. 29.
[111] Zh. Zhivkov, *Ikonomicheska Misul*, No. 2, 1970, p. 4.
[112] For data on work stoppages see I. Dimitrov, *op. cit.*, p. 54.
[113] Dakov, *op. cit.*, p. 8.
[114] *Rabotnichesko Delo*, December 17, 1971.
[115] Golebiowski and Zielinska, *Gospodarka planowa*, No. 4, 1975, pp. 270 and 276.
[116] Dakov, *op. cit.*, p. 9.
[117] Ivanov, *op. cit.*, pp. 2–6.

Bulgaria in one of the last positions.

This is a multi-dimensional problem. We are principally concerned with one aspect only: the effects of the strategy on the system's dynamic efficiency. We shall briefly pose on the rationale of the policy itself. Whether Bulgaria benefits from its dependance on the U.S.S.R. (and CMEA), or even if on the whole it exploits the U.S.S.R., rather than being exploited by it—as tentative Western estimates and my own preliminary research tend to indicate—the long-term effects of the policy cannot be ignored.

The Bulgarian economy is heavily dependent on foreign trade, being poorly and lopsidedly endowed with raw materials. It is a primary exporter of agricultural products both to CMEA and Western countries. Whether intensified food processing would be more beneficial than pushing machine-building, in which the country seems to have comparative disadvantages, is another question. For the last few years the intention of close economic integration with the U.S.S.R. has been the goal—of particular significance for the attempts to infuse the Bulgarian economy with technical progress borrowed from trading partners. Concurrently, Bulgaria is to specialize in some specific areas of machine-building. However, since in the foreseeable future the bulk of its exports will still consist of agricultural products, Bulgaria is attempting to secure not only the best terms of trade in that area, but also to force its CMEA parterns to pay for the highly capital-intensive investments in agriculture—just as the U.S.S.R. is doing in the raw materials area.

Bulgaria ranks second, after the GDR, in per capita reciprocal trade with CMEA. In 1971–75 Bulgaria was to maintain its fourth place among Soviet trading partners.[118] But the honor is achieved at the loss of exposure to the discipline of Western markets. The goal of close integration with the USSR is repeatedly stressed in Bulgaria. As in the past, the future automation, mechanization, and overall technical progress would rely on the USSR's achievements. Equipment for new capacities built in 1971–75 was to be imported mainly from the USSR.

Briefly, in the past intra CMEA prices remained virtually unchanged during a FYP—so called stop or fixed prices. They were set on averaged out world market prices of the previous period from which monopolistic and other distortions were supposed to be eliminated and to which transportation costs were added. Such prices were usually one step behind prevailing world market prices. The East European countries paid high raw materials prices to the USSR in the early 1960s (based on world market prices inflated by the rising demand during the early to mid-1950s), while the prevailing world market prices were lower. When world market prices of raw materials escalated in the late 1960s and early 1970s, the USSR, much to its dissatisfaction, was being paid the lower CMEA prices, reflecting the relationships prevailing on the world market in the early 1960s.[119]

Within CMEA Bulgaria is the largest per capita exporter of agricultural produce

[118] Dulbokov, *Pravda* November 2, 1971.

[119] Cf. J. Szeliga, *Polityka*, February 22, 1975.

and foodstuffs.[120] The Bulgarians have become increasingly more vocal publicly about their discontent with CMEA pricing of agricultural produce which moves against their interests. Increasingly Bulgaria has been delivering goods to the USSR on credit.[121] It appears that the terms of trade are deteriorating. However, Bulgaria supports the Soviet stand about rising capital intensity and relatively very low returns on capital invested in the raw materials industries, by supplying the same arguments for agricultural products.[122] The Bulgarians argue that this issue cannot be solved merely by changes in foreign trade prices so as to improve the terms for the exporters. The shortages of domestic investments in the exporting countries should be made up by specific assistance and credits from trading partners, contributed proportionately to their imports of agricultural products.[123] In the meantime Bulgaria is investing heavily in development of raw materials in the USSR. In 1975 such investment amounted to over 90 million foreign currency leva, and was slated to go up to 277 million in 1976.[124]

The pre-1975 intra CMEA price structure was criticized on the grounds that it hindered specialization. It favored machinery and discriminated against raw materials and agricultural produce.[125] With increasing raw materials and food prices on world markets, the Bulgarians obviously wanted to improve their position within CMEA. They feel that the price hikes do not go far enough to compensate them for the gains they forgo by not selling their produce on Western markets—as some of their partners do.

Early in 1975 it was announced that new prices of raw materials were coming into effect immediately in CMEA, instead of 1976 as expected. In the bilateral flows of some countries oil prices rose by 130%, industrial materials by 53%, machines by 11%, agricultural products by 28% (beef by 43%), and light industry products by 19%.[126] Of course, the actual price increases of oil for various purchaser-countries differed. No data were available for Bulgaria, but Hungarian sources claimed that a ton of Soviet orude oil rose from 16 rubles in 1974 to 37 rubles in 1975 and to almost 40 rubles in 1976.[127] Moreover, CMEA departed from the fixed price system to an annually sliding one. The 1975 prices were computed on the basis of a three year world market price average (1972–74), whereas the consecutive annual price changes are to be based on the average for the preceding five years.[128] All this has played into the hands of the USSR. The changing terms of trade in its favor,

[120] In the 1960s exports of raw agricultural products remained roughly at the same level, but exports of processed foodstuffs increased from 1967 to 1970 by 25%. I. Donkov, *Planovo Stopanstvo*, No. 1, 1972, pp. 23–27.

[121] Cf. R*abotnichesko Delo*, May 2, 1974.

[122] V. Kalchev, *Planovo Stopanstvo*, No. 5, 1973, p. 14.

[123] *Ibid.*, cf. A. Zubkov, *Vaprosy Ekonomiki*, No. 9, 1972, p. 76.

[124] S. Todorov, *Rabotnichesko Delo*, December 5, 1975.

[125] Ivanov, *Vunshna Turgoviya*, No. 7, 1973, p. 5.

[126] United Nations, *Economic Survey of Europe in 1975*, Part I, Chapter 2, Pre-publication text, ECE (XXXI)/1, Add. 1, p. 77.

[127] I. Foldes *Nepszabadsag*, February 23, 1975; *Nepszabadsag*, January 14, 1976.

[128] Szeliga, *op. cit.*, Foldes, *op. cit.*

together with the increasing participation of East European countries in developing the Soviet raw materials base, might presage a relative deterioration in performance of Eastern Europe in comparison to the USSR.

Naturally Bulgaria has to pay higher prices for imports from the West and is affected by world market price changes which influence imports from the West from CMEA partners. It is not always in Bulgaria's interest to support the Soviet demands for relative increases of raw materials prices so as to reflect changes in world trade dynamics and to promote monopolistic practices to raise fuel prices. For these are likely to affect the prices Bulgaria pays for imports from the U.S.S.R., unless the monopolistic element will be appropriately rectified, which does not seem likely. Of course, the matter is complicated by the usual problems of tie-in purchases in bilateral trade agreements.

The impact of foreign trade on reform is blunted by several factors. By securing a relatively stable outlet for about four-fifths of exports, Bulgaria can postpone the internal changes required to modernize and upgrade output, which can be limited only to the strength of the increasing demands of CMEA partners. But even here the bureaucratic process plays the role of a buffer. A precondition for successful reform is that high quality of imports should stimulate upgrading of domestic production; i.e., that competition be introduced through foreign trade. If the substantial share of imports originates from CMEA, the beneficial competition effect is weakened.

However, the share of trade with the West has a much greater impact than the mere statistics suggest or the continuous official stress on trade with the U.S.S.R. indicates. While the Bulgarians desire Western advanced technology and know-how, their overt preference for trade with CMEA is spurred by (1) the political situation· and (2) the difficulties in marketing Bulgarian industrial goods in the West.

Understandably the c.p. must have mixed feelings about major expansion of trade with the West, even irrespective of political constraints. Such trade makes plan fulfilment more difficult. The demanding buyer is a problem and the complaints and pressures he generates might not be disposed off so easily as with CMEA partners. Adaptation to such trade disturbs the structure of output, deranges the way of doing things, and necessitates more radical reforms. This also intensifies tensions in intra-CMEA trade, *inter alia* because each country tends to channel its "best output" to Western markets. One of the advantages of intra-CMEA trade is that it makes the task of realization less difficult and planners can dispose of shoddy output, for in bilateral agreements partners have to accept goods they do not want.

VIII

With the exception of the U.S., diffusion of foreign-generated innovations appears to be at present the most important agent of technical change and a key factor in productivity growth. The growth rate of diffusion varies over time and is affected by the embodied type (import of investment goods, incorporating new

foreign techniques) and disembodied (licenses, patents, industrial espionage, international exchanges of research and personnel). In STEs the fundamental problem is the rate at which new techniques are adopted and incorporated into production and spread throughout the system. There seems to be a major difference between the technical change in high-priority activities—which benefit not only from discriminatory allocation of best resources, but also from removal of some of the obstacles to new technology—and the rest of the economy.

The first rumblings of reform echoed the calls for technical progress which have been growing crescendo form, in contrast to other reform desiderata which slowly waned off. Attention was paid to planning and decision-making, with increasingly delineated competence and delegation of decision-making to the medium levels of management and the r&d organizations. Reorganizations followed each other with little success.

One of the problems encountered is the disparity between particular research undertakings and requirements of practice. The theoreticians shy away from practical matters. Difficulties are encountered in translating new techniques from the drawing boards to the production process. There is no incentive for generating technical progress at the lower levels and the c.p. finds it difficult to diffuse the progress originating at the center. The r&d offices tend to spread their work on many projects, without much interest in final practicability. How the product is to be introduced in production, whether its production is mastered, whether the designs and prototypes are approved, whether the technical and economic parameters of the new product are approved, etc.—all these questions are often altogether absent from the planning work.[129]

The keynote of the September, 1969 Plenum was technical progress. Industry was urged to modernize according to the highest world standard, mainly by means of concentration, automation, and specialization. Much was said and a number of legal documents were adopted. The vast literature is mainly concerned with desiderate rather than with concrete steps to realize them, but its tenor should be conveyed so as to indicate the shifting content of the reform. Though such pronouncements do not necessarily mean that conditions for their implementation are created, they indicate the state of the economy, the activities that require attention, and the success of meaures taken so far. True, vague pronouncements are also a bureaucratic way of giving the impression of action and promising solutions in the future, or detracting attention from other sensitive areas. Nevertheless, these pronouncements indicate an awareness of the possibilities of borrowing the fruits of research from abroad; of the need to allocate resources to the "development and implementation" activities; and of the exigencies of relying on incentives. But neither awareness nor new laws are enongh. The real problem is whether the c.p. is ready and willing to sacrifice other conflicting exigencies and desiderata.

[129] *Rabotnichesko Delo,* December 14, 1972, p. 5.

IX

After the interlude with market-type reforms in the early 1960s, the Bulgarian c.p. still had to face up to the exigencies that made him turn to reforms in the first place. Short-term solutions were not enough. A wider perspective had to be provided; and this was sought in computarization. Computerization seems to be favoured because it permits a high degree of centralization and control. The memory capacity, the operational speed of the computer, and the enhanced expediency of central decision-making and the possibility of elaborating several plan variants are all stressed in the official proclamations about AMS (automated management system). In the U.S.S.R. considerable philosophical differences divide the various approaches to the use of mathematical techniques in planning. Roughly such application could entail a greater de-centralization and subordination to the central plan via parameters (indirect centralism) or lead to centralization of decision-making with highly automated control systems (embracing current operative decisions).[130] While avoiding the extremes of ultracentralization, the official approach in Bulgaria gravitates to the second philosophy.

It might not be too far-fetched to suggest that the U.S.S.R. is using Bulgaria as a willing guinea pig to test the feasibility and advisability of a nation-wide Automated Management System (AMS). Although such an experiment could be conducted in one of the Soviet republics, it would not be as "pure" as in Bulgaria, for the former are closely interlinked by a variety of ties and the distortions introduced by the non-experimenting republics could be sufficiently powerful to undermine the validity of the experiment. Bulgaria, on the other hand, is a small country, with a less complex economy, which, although fairly closely dependent on the U.S.S.R., is not directly subordinated to Gosplan, and where such a system could be tried with relative ease. By Bulgrian accounts the process of establishing the computer centers is considerably assisted by Soviet hardware, software, know-how, and training of specialists.

The process of computerization in Bulgaria was visualized as concentrating on large computer centers, staffed with teams of mathematicians, designers, programmers, and operators. It was foreseen that within the 1971–75 plan the network of computer centers should be established.[131] Apparently such enters were already built in the large district capitals, to be integrated with the center in 1976–80.[132] The information flow from bottom to top is to provide detailed data for elaborating state plans. Statistical information on plan fulfilment will be collected through this channel. The two-way channel should provide "daily" information on plan fulfilment and changes in various indices, which could easily be spread around the various agencies. The unified system is being built in the form of a pyramid, following the structure of the administrative appratus. The base of the structure will

[130] Cf. I. Donkov, *Planovo Stopanstvo*, No. 1, 1972, pp. 197–216.
[131] G. Sotirov, *Transporten Glas*, February 12, 1972, p. 1.
[132] T. Petev. *Otechesteven Front*, October 23, 1970, p. 1.

be formed by enterprises and other units which will feed primary information to the regional centers. A part of the data will be provided to the local authorities to enable them to direct and control the units. Another part—the most important indicators—will travel all the way to the peak of the pyramid—the State Information Administration.

There is marked pressure from above and considerable resources allocated for computerisation of the managerial and production process. During 1971–75 the number of electronic computers in Bulgaria almost doubled. But they were relatively underutilized. The data processing time in relation to total service time reached only about 50% Managers were not particularly interested and had little training in computer use.[133] Some of the most obvious problems included lack of trained personnel, lack of unity in design and implementation of the programmes, etc.[134] Of course, one of the more serious problems is lack of modern hardware and software.[135] AMS have been introduced in a number of heavy industry enterprises. Their development is at a more advanced stage at the Burgas Petrochemical Plant and the Chemical Combines at Vratsa and Dimitrovgrad, where so far the following shortcomings were noted: The potential of computers is either underestimated or overestimated so that either "magical" solutions are expected or equipment lies idle. Untrained personnel and "old-style" work methods predominate. Installations and programmes are ill-synchronized, endangering the unified systems within branches and on an economy-wide scale. The redesign of the information system is lagging. The equipment's idleness is often due to a lack of preparation and execution of installation work; unimportant questions are being solved due to a lack of methods and programmes; and enterprises try to secure computers without having sufficient use for them. Many organizations consider computerization as a burden imposed from above. They execute the installation unwillingly. In other cases they undertake installation energetically without paying much heed to efficint use.[136]

On the whole, considerable difficulties were encountered in introducing AMS, and in many cases the results were disappointing. It was admitted that the implementation of the idea proved to be a much more complicated and difficult undertaking than many enthusiasts had initially believed.[137] Many technocrats tend to treat automated systems "as a goal in itself, a kind of fashionable undertaking affording an opportunity to show off thechnical progress."[138]

Management is usually inexperienced and unprepared in computer technology. It can neither participate in designing the system, nor in presenting coherently the

[133] A. Buchvarov, *Ikonomicheski Zhivot,* April 30, 1975, pp. 12–13.

[134] Y. Toshkov, *Ikonomicheska Misul,* No. 2, 1972.

[135] For a description of second-generation computer hardware in use at the Electronic Computer Center of the Ministry of Transportation see K. Khristov, *Tekhnichesko Delo,* June 27, 1970, p. 2.

[136] P. Kiratsov, *Novo Vreme,* No. 10, 1972, pp. 22–26.

[137] N. Papazov, *Rabotnichesko Delo,* February 12, 1974, p. 4; Cf. V. Spiridinov, *Naruchnik na Agitatora,* No. 17, 1972, pp. 12–19.

[138] Spiridinov, *op. cit.,* p. 19.

problems that the computer is supposed to solve. This lack of involvement, often caused by the knowledge barrier, frequently results in systems that are particularly ill-adapted to the requirements of a given industry or enterprise. Even the specialists in charge of introducing the system often feel unqualified and are learning by doing. Furthermore, their cooperation with management is tenuous as they feel that the managers lack the basic knowledge to understand the system. Under such conditions the managers who have no grasp of the computer system installed fall into the unenviable position of relying entirely on their subordinates, without means for controlling them. Herein lies the danger of isolation of the erstwhile manager from the management process shaped by the computerized system. The potential loss of power is a real threat to the manager.[139] Hence, although he will execute the order received he will neither do it willingly nor diligently and certainly will not take the initiative. This is a serious stumbling block with which the designers of the AMS have to cope.

Another and far more serious obstacle to computerization, as it pervades the entire system and goes to its very backbone, is the entire complex of shortcomings of the information system. No matter how modern and technically effective the hardware installed, how well thought-out and adapted the software, how well-trained the technicians, and how well integrated the entire system; the computerization can only be as effective and the decisions as accurate and to the point as the information fed into the system. In view of the all-pervasive disinformation there is serious doubt that the computerization, at least within the existing system, will palpably improve the efficiency of the Bulgarian economy.

The University of Tennessee

[139] I. Mandadziev and E. Atanasova, *Schetovodstvo i Kontrol*, No. 4, 1968, pp. 40–44.