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## ARTICLES

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### *Capital Accumulation and Growth in a Mixed Socialist Economy: The Case of Soviet NEP\**

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#### 1. *Dynamic Efficiency as a Test of a System*

The sustained interest in the Soviet NEP system as it existed during 1921-28 stems from the recognition that this socialist experiment can serve as a valuable standard of comparison for the subsequent Stalinist command model and the more recent socialist variants in East Europe.

One school of thought maintains that NEP may be conceived as a mixed market-oriented model which replaced the command economy of War Communism (1917-21) and was in turn superseded by a planned command system associated with the political economy of Stalinism.<sup>1</sup> Patronized by Lenin and sanc-

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<sup>1</sup> Analytical aspects of the NEP model are explored by V.N. BANDERA, "The New Economic Policy (NEP) as an Economic System," *Journal of Political Economy*, Vol. LXXI, No. 3 (1963); and his "Market Orientation of State Enterprises during NEP," *Soviet Studies*, Vol. XXII, No. 1 (1970). The NEP experience is treated as a distinct

tioned by laws, the NEP system allowed the interaction of the nationalized and private sectors in the context of market institutions. It is widely recognized that this variant of mixed socialist economy assured a measure of efficiency in the use of productive resources that was generously sufficient to feed the population and propel the wheels of industry and commerce.<sup>2</sup>

In contrast, the Soviet official thesis holds that NEP was merely a shrewd tactic which, somehow inevitably, had to yield to a more orthodox Marxist system requiring command, planning, and centralism.<sup>3</sup> In the West, economic historians like A. Erlich and N. Spulber have been preoccupied more with an interpretation of doctrinal debates and political machinations precipitating NEP's demise and the rise of command economy than with an explanation of the structure and effectiveness of the system as it existed.<sup>4</sup>

The enduring issue whether the NEP model represents a viable alternative must be addressed primarily from the stand-

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system by A. NOVE, *An Economic History of the USSR* (1969); and by P.J.D. WILES, *The Political Economy of Communism* (1962). In the context of reform debates in East Europe, the NEP precedent of market socialism was recounted by L. SZAMUELY, *First Models of the Socialist Economic System* (Budapest, 1974); and B. URBAN, *Zrod a konec velké diskuse: Sociálněekonomické teorie dvacátých let v SSSR* [The origin and the end of the great debate: Socio-economic theories of the 1920s in the USSR] (Prague, 1968). An unorthodox Soviet view of the NEP as an alternative to the centralized command system is offered by G.S. LISIČIKIN, *Plan i rynek* [The plan and the market] (Moscow, 1966).

<sup>2</sup> The institutions and the history of economic revival during NEP are detailed by standard texts and the voluminous study by E.H. CARR, *Socialism in One Country*, 3 Vols. (London, 1958-64).

<sup>3</sup> The official thesis that NEP constitutes a transitory period of reconstruction and socio-economic mobilization is reaffirmed in a recent volume I.A. GLADKOV, ed., *Perekhod k nepu; vosstanovlenie narodnogo khoziaistva SSSR, 1921-1925* [Transition to NEP; the reconstruction of the USSR economy, 1921-1925] (Moscow: Akademia Nauk, 1976).

<sup>4</sup> The raging controversies of the 1920s about the prospects for a Communist economy and industrialization are interpreted by A. ERLICH, *The Soviet Industrialization Debate, 1924-1928* (1967). A first-hand account of the turbulent times is offered by N.V. VOLSKII, *Novaia ekonomicheskaia politika i krizis partii posle smerti Lenina: gody raboty v VSNKh vo vremia NEP* [New economic policy and the crisis of the party after Lenin's death: the years in the VESENKHA during NEP] (Stanford, Hoover Institute, 1971).

point of the efficiency and equity in the utilization of human and other resources. When the preceding command system of War Communism failed to meet even the crudest test of efficiency, namely, prevent the spreading starvation, an opposition on the scale of the Kronstadt uprising could be defused only by revamping the system. In contrast, it is agreed that NEP's experience proved this system's capacity to provision the cities and the hinterland with more than bare necessities. Nonetheless, the query about the static efficiency of a system, which in dire circumstances involves human survival, has to be extended to dynamic considerations of growth and the improvement in the living standards of the population.

Indeed, in our century the acid test of the effectiveness of a system like NEP is whether it is capable of generating economic growth. The doubts raised by the anti-NEP opposition linger to this day: can capital accumulation and technological progress needed for industrialization and defence be assured under a mixture of nationalized, cooperative, and private enterprise? Can development policies succeed under such mixed market system? <sup>5</sup>

This paper evaluates the capability of NEP to generate economic growth. To start with, it appraises the key role of the socialized sector of the economy, a significant consideration where the burden of industrialization falls on the nationalized productive apparatus in manufacturing, mining, and transportation. Next, it brings to light the largely overlooked attribute of the development policy during NEP, namely, that it relied on the "unbalanced growth tactic." And, thirdly, the paper argues that the observed indicators of growth under the leading-sector development policy in a mixed system of NEP recorded a surprisingly brisk performance and a promising potential.

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<sup>5</sup> The negative and ideologically unbending stand on these questions was forcefully articulated by E. Preobrazhensky. See the recent translation of his *The New Economics* (Oxford, 1965); the book includes valuable commentaries by A. Nove.

## 2. Preeminence of the Nationalized Sector in Generating Capital Funds

In their debates concerning the mechanism and strategies of development, the NEP contemporaries quite appropriately stressed the need to generate investible funds and to channel them according to development priorities. As was shown elsewhere, in the mixed NEP system, agriculture was largely private, marketing was cooperative and private, but as much as three-quarters of the industrial-manufacturing sector was nationalized.<sup>6</sup> Hence it is essential to understand to what extent and how efficiently the state enterprises contributed to capital formation.

The extraction of what Marx calls "the surplus value," i.e., of investible funds, became firmly institutionalized in order to assure the upkeep and accumulation of capital equipment in socialized industry. The comprehensive "Decree on trusts" of April 10, 1923 explicitly required the nationalized enterprises to function in accordance with the principle of commercial accountability (*kommercheskii raschet*) with the aim of extracting profits (*izvlechenie pribyli*). Thus profits, though no longer a source of inequity in the distribution of income and wealth, as under private capitalism, retained their function of capital funding.<sup>7</sup> It is necessary to understand therefore how profits were being generated by these market-oriented and autonomous socialized enterprises.

Under this system, the profits of the trusts, and to a lesser extent of the cooperatives and private enterprises, became the chief source of capital funds for each enterprise as well as for the entire industrial sector. The commercial principles of accounting assured that profits destined for capital formation were net of deductions for capital amortization which were correctly regarded as part of the cost of production. Interestingly enough,

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<sup>6</sup> BANDERA, "The New Economic Policy," pp. 268-70.

<sup>7</sup> The rules of calculation and allocation of profits are discussed in A.M. GINZBURG, *Ocherki promyshlennoi ekonomiki* [An outline of industrial economics] (Moscow, 1930), p. 273; see also Bandera, "Market Orientation," pp. 115-18.

trusts also had to pay into the state treasury the rental for the use of land, forests, and other natural resources; inasmuch as these resources could have been used by private or cooperative enterprises, the rental payments by the trusts were properly justified as being "opportunity costs." It is also noteworthy that trusts had to pay the prevailing interest rates on long-term and short-term capital borrowed from socialized banks. Clearly, these various cost deductions would be justified by the modern notion of social opportunity cost. The value-added tax of 10% was another cost from the standpoint of productive enterprises and it constituted a potential source of capital funding by the state. As can be seen, after all these cost deductions, net profits would closely correspond to the Marxist notion of surplus value.

The link between profits and capital formation was not left to chance but was prescribed by the state, very much as in the Yugoslav model of labour-managed socialism. Out of net profits generated by the enterprise, 25% was earmarked for new capital expansion, 10% was deposited in the Development Bank and was to be used expressly for long-term investment loans, and 10% went into the capital reserve fund of the trust; thus 45% of net profits was at the direct disposal of the trusts for purposes of new capital formation. The remaining 10% of profits was retainable by the trust for purposes of improving the living standards of the employees, primarily for housing construction; the bonuses for administrators and managers could not exceed 1/4% of profits. Finally, the remaining share of profits, or approximately 40%, was payable into the state treasury.

The increasing capability of the nationalized industrial sector to generate capital funds under the above profit system is well reflected in Table 1. As can be seen, the nationalized enterprises under NEP constituted an effective mechanism for extracting capital funds for the upkeep as well as expansion of capital resources.

The established procedure in the allocation of these briskly expanding funds was by no means arbitrary but reflected both

TABLE 1

EXTENT AND ALLOCATION OF PROFITS  
IN THE MANUFACTURING SECTOR (in million rub.)

Fiscal Year	Total Profits Generated	Profits Transferred to the State Budget	At the Disposal of Trusts
1923/24	126	160	-34
1924/25	456	185	271
1925/26	633	283	350
1926/27	647	445	202
1927/28	743	391	352

Source: A.M. GINZBURG, *Ocherki promyshlennoi ekonomiki*. Moscow, 1930, p. 274.

market and policy criteria. Capital allocation was essentially decentralized. Roughly half of the profits generated by state industries and other sectors could be allocated autonomously by the enterprises themselves, thus reinforcing productive enterprises in proportion to their profit-making effectiveness. Simultaneously, state and co-operative banks were expanding their capacity to fund investments under lending criteria that reflected market signals as well as preferences of vocal policy makers. Of course, allocations by the state treasury for investment projects could reflect the preferences of Party and government leaders more directly.<sup>8</sup> Overall, the investment process and hence the growth pattern was more center-controlled than, say, in Yugoslavia since the mid 1950s, but it was relatively decentralized in comparison with procedures under Five Year Plans.

Capital formation outside the nationalized sector was relatively smaller but important in the system as a whole. The cooperatives, farm proprietors, and private enterprises proved themselves capable of channeling their savings into productive processes in

<sup>8</sup> As shown by GINZBURG, *op. cit.*, investment priorities were also formulated by the Gosplan and the VESENKHA, but such guidance was neither comprehensive nor mandatory. The role of the state budget in the collection and allocation of investible funds is discussed by A. BAYKOV, *The Development of the Soviet Economic System* (Cambridge, 1947).

commerce, consumer-oriented manufacturing, and agriculture-related enterprises. The banking system was intended to function as an intermediary between savers and investors for the entire economy as well as between state and private enterprises. To be sure, the ability of banks to encourage the saving process among the working population and the commercially oriented farming households was poorly developed as a carry-over from the tsarist era. It is noteworthy, however, that cooperatives and to some extent private enterprises did have access to bank loans; only in the latter part of the 1920s did the banks increase discriminatory pressures against private entrepreneurs.<sup>9</sup>

Given the nature of the mixed market socialism, the political economists of the 1920s had to come to grips with the intricate issue, one of fundamental importance in modern development theories: what are — and what should be — the ultimate sources of investible funds in an economy where various sectors are inter-linked through the price mechanism? Concerned with the preservation of the alliance or *smychka* between workers and peasants according to the proclaimed policy, the protagonists debated to what extent achieved and projected capital accumulation should rely on the implicit transfer of savings from villages to cities. Appropriately enough, attention was focused on the changing terms of trade, i.e., the relative prices for agricultural and manufacturing goods, for this proved to be a potent mechanism shifting real income out of the agricultural and into the manufacturing sector.

Indeed, the strained social fabric was threatened by the spreading scissors crisis of declining agricultural and rising manufacturing prices.

Since prices were being determined in a market system, it

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<sup>9</sup> This is well reflected in A.M. GINZBURG, *Chastnyi kapital v narodnom khoziaistve SSSR* [Private capital in the economy of the USSR] (Moscow, 1927). During the past two decades, Poland — a variant of mixed socialism — has admitted the need to finance the investments in private agriculture and small-scale handicrafts.

was reasonable and politically safe to seek an explanation for these price movements in the peculiar conditions of supply and demand. Agriculture experienced a rapid revival and good crops, while further industrial output required renovations and capital expansion. On the demand side, agricultural staples faced low income elasticity of demand and depressed world markets, while demand for manufactures, construction, and capital equipment seemed to outstrip production capacity.<sup>10</sup> In retrospect, however, one must not overlook the crucial role of the highly concentrated market structure for manufactures where trusts (unified into 12 marketing syndicates) wielded monopolistic power and were prone to reap profits through rigged and inflexible prices. After all, the rules of the game mandated profit making, and the policies of reconstruction and industrialization generated the pressures to accumulate "surpluses" for investment purposes. Then as now, those lavishing praises on NEP's efficiency too often overlook that the nationalized sector proved itself embarrassingly capable of generating profits not merely through efficient production methods and rational allocation of resources, but also through monopolistic pricing in the manufacturing sector. The distortions in the allocation of resources caused by such monopolistic behaviour are today well known though difficult to measure. During NEP, the consequent erosion of the politico-economic truce with the agricultural population which lacked market power as sellers of staples and as buyers of manufactures was generally recognised. Paradoxically, both the detractors and the admirers of mixed economies like NEP overlook the theoretical and demonstrated ill-effects caused by the excessively monopolized industrial organization in this type of mixed economy.<sup>11</sup>

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<sup>10</sup> The formation of the terms of trade between industry and agriculture in a mixed system of NEP is analysed with the help of the Marshallian reciprocal demand model in BANDERA, "The New Economic Policy," pp. 276-77.

<sup>11</sup> The distortions caused by monopolies in a mixed system are analysed by BANDERA, "Market Orientation," pp. 119-21.

Thus our praise of the capability of the NEP system to generate investible funds in the crucial nationalized sector and elsewhere has to be tempered with the recognition that such monopolistic industrial organization tends to distort the allocation of scarce resources and might even disrupt socio-economic stability. The unmistakable capability of the nationalized sector to generate capital funding through profits is therefore a mixed blessing.

To comprehend better the NEP experience with economic development, it is necessary to consider also the context of development theories and policies prevailing at that time. It is enlightening to reinterpret past experience from the standpoint of our current theories of economic development.

### *3. Development Policy during NEP*

Our discussion so far has shown how capital accumulation was being expedited by a pervasive monopolistic industrial organization. But this was not a system of *laissez faire* where enterprises would drift unguided. The one-party government, boastful of occupying the "commanding heights," wielded such powerful policy instruments as control over credit policies, control over union and republic budgets, political leverage over nationalized enterprises and labour unions, and state monopoly over foreign trade. Hence the government was in a strong position to set and pursue development goals.

Curiously enough, however, Soviet and even Western studies view the NEP era through a peculiar prism. They are engrossed in explaining the advent of growth doctrines that became dominant in the subsequent monolithic Stalinist economy but overlook the development policies that were actually pursued at the time.<sup>12</sup> In that regard, Soviet economic scholasticism differs mainly in being less generous toward the ideas of the opposition, and in

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<sup>12</sup> Several translated representative articles on economic growth modelling written during the NEP years, along with background commentaries, can be found in N. SPULBER, *Soviet Strategy for Economic Growth* (1976).

propagating a self-deluding myth that the rise of comprehensive development planning along with the suppression of market spontaneity was somehow historically inevitable, theoretically superior, and ideologically pristine. At the same time, an impression lingers on that the NEP economy drifted aimlessly under anaemic holding policies of reconstruction. However, during NEP, development theories were not merely debated but also implemented with apparent determination and success.

In essence, development policies during NEP may be characterized as reliant on the leading sector or big-push tactic in a market-oriented mixed system.

From the very outset of NEP, the revival of production and exchange, previously stultified by the bureaucracy and regimentation of a market-less system of War Communism, was not left to the "invisible hand" of self-motivated activities in the market. With Lenin's prodding, governmental incentives and budgetary support stressed the revival of such selected high-priority nationalized sectors as railroad transportation and fuels.<sup>13</sup> Initially, subsidized under a privileged status of "state accounting," these enterprises were spurred to attain economic viability and solvency under "commercial accountability" using market-formed cost and price parameters. The emphasis on key sectors proved effective in the reconstruction process.

The underlying big-push development tactic was embodied very early in the GOELRO electrification programme.<sup>14</sup> As

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<sup>13</sup> A perceptive interpretation of Lenin's approach to growth is offered by M. PROZELASKOWSKI, "Elementy teorii wzrostu w Leninowskim planie elektryfikacji Rosji," *Ekonomista* (Warsaw), No. 5, 1967.

<sup>14</sup> The GOELRO electrification scheme was based on Grinevetskii's proposal (published in 1919) for postwar reconstruction, growth, and modernization. Initially, investment was to concentrate in a few strategic producer-goods industries — the "leading links" in Soviet parlance. Such unbalanced but rapid growth was expected to spill into other industries favoured by the growing market demand. L. Smolinski has demonstrated in his "Grinevetskii and Soviet Industrialisation," *Survey* (Paris, April 1968) that GOELRO adopted Grinevetskii's priorities. This disproves Soviet claims that under NEP's market-oriented system, investments would necessarily favor the profitable consumer industries.

Lenin's pet project, the electrification plan, was finalized toward the end of the War Communism system (February to November 1920), but was signed in 1921 and launched during NEP. In that ambitious programme, the large-scale capital-intensive and technologically-advanced hydrostations and several other major construction projects were intended to serve as the hubs generating spin-off effects through what we call today forward and backward linkages.<sup>15</sup> It is noteworthy that the power stations as such constituted only 7 percent of the GOELRO projected investment of 17 billion gold rubles in a ten-year period: 17.6 percent was allocated to fuel, and 47 percent to transportation. Conceived for a market system, that plan stressed a coordinated growth of linked-up enterprises. The key projects were nonetheless treated preferentially; for example, the Dniprelstroi in Ukraine merited a concentrated dose of scarce domestic capital and engineering talent, as well as precious foreign currency for the import of equipment and engineering services. In connection with that project, certain types of output like cement were planned inputs into construction, while others like fertilizers required the new electric power. Electricity itself was a final product for which there was great potential demand. On Lenin's recommendation, one such forward linkage of GOELRO was intended to extend electric facilities into villages, thus offering incentives to a vast consumer sector as well as enhancing the introduction of modern tools and methods to farmers and agricultural cooperatives.<sup>16</sup> This approach contrasts with Stalin's plans which categorically denied electric power to the agricultural sector. Thus, NEP's industrial projects like electrification, development of new oil fields in Emba, construction of the Turk-Sib railroad, and mass

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<sup>15</sup> A contemporary economist A.I. Aikhenvald argued that, "New enterprises and factories should concentrate around new electric stations... On the other hand, electrification would make no sense without the growth of electrotechnical, machine-building, and construction industries." See his *Sovietskaia ekonomika* [The Soviet economy] (Moscow, 1928).

<sup>16</sup> Smolinski, *op. cit.*, p. 105.

production of tractors were aimed at promoting agricultural productivity both through technical link-ups with industry and the provision of real incentives in the form of goods and equipment. In contrast, the Stalinists under their comprehensive plans were primarily determined to raise the marketing of agricultural output in order to squeeze out the so-called agricultural surpluses and thus subsidize the industrialization in the cities.

The leading-sector development tactic was harmonious with policies toward private enterprise and even foreign capitalist concessions. Recognizing that neither capital funds nor organizational talent were sufficient to exploit all profitable projects, the state allowed selective foreign concessions to manage mining projects that offered foreign outlets. Similarly, domestic cooperatives and private entrepreneurs could undertake small-scale productive activities. It is quite apparent, however, that such selective small-scale private domestic and foreign projects could play only a supplementary role in relation to large nationalized enterprises and big-push programmes.

It is easy to see that the market mechanism was entrusted to provide both the signals and the incentives (in the form of profits) for the pursuit of socially desirable linkages with the rapidly advancing key projects. But in addition to this self-propelling process, policymakers strove to steer the economy as a whole. Nonetheless, comprehensive planning was essentially indicative rather than mandatory. While modelling of intersectoral input-output flows revealed structural features of the economy, published results were merely arguments in the formulation of policy objectives. The concept of intersectoral flows was prominent already in Grinevestskii's development proposal published in 1919, and his approach permitted the elaboration of the GOELRO plan. Interestingly enough, GOELRO was not only a general plan but contained a number of specific blueprints for action. Similar models were soon conceptualized more elegantly by N.D. Kondratiev, P.J. Popov, L. Litoshenko, and, later, by W.

Leontief in the West. Significantly enough, though, comprehensive inter-sectoral models during the 1920s represented what is known today as "indicative planning," serving primarily as a basis in policy formulation and as guidelines for policy decisions. Such plans were certainly not intended to commandeer the required productive inputs as was the case under War Communism and, later, under the Five Year Plans.

Another distinctive feature of development policies during NEP was their pragmatic character. Thus the GOELRO project gave priority to the Dnieper site for the hydroelectric facility on the basis of analytical surveys of alternatives during several years before the Revolution. Throughout NEP, considerable effort was made to collect and interpret economic statistics, and data were meticulously published and interpreted. Most significantly, there seemed to be a consensus that prices generated in the markets had to be respected as meaningful indicators of opportunity costs and values. Thus project and investment priorities were based primarily on market parameters rather than on administrative or political criteria as after the introduction of authoritarian planning.

It was also well understood during NEP that growth requires the expansion of skills through education and technical training, a process which can be enhanced through foreign contacts. Accordingly, efforts were made to gain access to foreign technology, especially German, British, and American. That is why relatively large numbers of technicians and students were sent abroad for training. It is also noteworthy that even in an unfriendly international setting of post-war years, the Soviets were determined to subordinate trade to the requirements of industrialization and modernization; they aimed to enlarge exports and to divert scarce foreign currency toward imports of machinery. Here again, we observe that the system was being geared for growth as an open though protectionist economy.<sup>17</sup>

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<sup>17</sup> It was debated whether the economy should be autarchic or open. Even in

Not surprisingly, the political and economic leadership respected economic uncertainty that could upset even well conceived plans. It was said, "One must not plan without the ability to foresee." Especially feared were the unpredictable foreign markets for traditional agricultural exports. Similarly, the prospect of poor harvests restrained the policymakers, and it was proposed to stockpile agricultural and other raw materials before committing resources to ambitious plans. In contrast, the aggressive ideologues dared to take chances with human lives in pursuit of a utopian system and grand development designs, an outlook incorporated in the subsequent big-push Stalinist plans.

In short, the leading-sector big-push development policies during NEP appear realistically attuned to that peculiar "mixed system." The development process was essentially decentralized and permitted a good measure of economic freedom. Hence the necessary process of capital accumulation may be judged as relatively humane and cognizant of current needs of the toiling masses.

#### 4. *The Empirical Record of Reconstruction and Growth*

To add substance to this inquiry, let us consider the evidence of the growth process during NEP. The extensive statistical record of the NEP years remains largely unexplored in the West and is systematically distorted in the Soviet Union. Having shown the importance of capital-generating capabilities of the nationalized sector and the development policies of the government, we shall characterize briefly the accomplishments from the standpoint of economic reconstruction and development.

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view of a hostile international climate, the argument prevailed that trade should be used to avoid glaring comparative cost disadvantages. Although nationalized, the state trade monopoly was still relatively decentralized, allowing some autonomy in foreign trade to the republics like Ukraine as well as to trusts and syndicates. However, planning and direct controls by the new "Foreign Trade Monopoly" increased progressively, allegedly at Lenin's behest but certainly in tune with the tsarist mercantilist tradition.

TABLE 2

GROWTH OF NATIONAL INCOME DURING AND AFTER NEP

Year	Growth of National Income as % of Previous Year
1922-27 <sup>1</sup>	19.5
1926	22.2
1927	6.0
1928	8.7
1929	15.6
1930	21.1
1931	16.8
1932	11.2
1933	6.6
1934	15.0
1935	19.6
1937 <sup>2</sup>	20.0
1940 <sup>3</sup>	10.0

Source: A.I. ANCHISHKIN and I. V. IAREMENKO, *Tempy i proporsii ekonomicheskogo razvitiia*. Moscow, 1967, pp. 26-29.

<sup>1</sup> Estimated averaged annual rates of growth during 1922-27. Per capita rates of growth during the same period were 17.5%.

<sup>2</sup> Annual rate of growth relative to 1935.

<sup>3</sup> Annual rate of growth relative to 1937.

Both the aggregated and disaggregated statistics relating to economic performance during NEP indicate remarkable success. Recent estimates of annual growth rates of aggregate and per capita national income during the half-century of Soviet history attribute to NEP above-average performance as shown in Table 2. This record compares quite favourably with the revival pace in post-World War II Germany and Japan, as well as with the enviable Yugoslav growth rate during the 1960s. Even if we make comparisons with the exaggerated and distorted figures for the subsequent Five-Year Plan system and with the reconstruction record after World War II, the NEP performance appears very attractive. It is generally agreed that around 1926-27 Soviet national income reached the level of the 1913 national

income in the tsarist empire appropriately adjusted for the loss of territory.

To determine whether such performance was merely reconstruction of the destroyed tsarist economy or also a manifestation of growth capability of the new mixed system, the evidence must be evaluated critically. Doubtless, capital funds were required to cover restarting costs in disrupted enterprises and to offset perennial capital depreciation. However, by disaggregating the content of expansion, one could get some idea of the extent to which the prevailing political economy and new organizational forms promoted new capital-using industrial projects and innovation.

The potential of an economy may be judged by comparing the forecasts with actual performance. Already in the early part of the 1920s, several sectoral prognostications were worked out and debated by political economists, ideologues, and party leaders. These forecasts, sometimes presented as preliminary plans, were essentially projections of observed trends and capabilities under a set of assumptions regarding investment and other economic policies. One such fundamental assumption accepted an orderly functioning of the mixed market system itself; in the words of Kondratiev, "Market and prices constitute a precondition for the formulation of a plan because, otherwise, we would lose the ability to evaluate economic activities."<sup>18</sup> In that sense, whether the projections pertained to particular industries, to sectors of the economy, or to the entire economy, they expressed a judgment about the capabilities of the entire economic system.<sup>19</sup>

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<sup>18</sup> Quoted after S.G. STRUMILIN, *Na planovom fronte* [On the planning front] (Moscow, 1958), p. 254.

<sup>19</sup> During the early NEP years, the VESENKHA devised several plans dealing with specific problems in the economy. Significantly, these plans assumed a market framework. By the mid-1920s, planned policy objectives could be pursued with the help of banking and fiscal instruments. To be sure, price controls and other kinds of market interference were also used: at first, as a carryover from wartime; during 1922-24, definitely subsiding; during 1925-27, slowly expanding; and, after 1927, definitely accelerating.

TABLE 3

## CAPITAL OUTLAY AND OUTPUT IN METALLURGY: PROJECTIONS AND EXPERIENCE

Year	Capital Outlay in Million		Profits in		Output in Million Tons					
	Chervonetz		Million Rubles		Cast Iron		Steel		Rolled Iron	
	Expected	Actual	Expected	Actual	Expected	Actual	Expected	Actual	Expected	Actual
1913	—	...	—	...	—	4.21	—	4.28	—	3.58
1922/23	—	9.8	—	-6.7	—	.30	—	.59	—	.46
1923/24	15.5	15.6	-7.0	3.2	.41	.68	.64	.99	.49	.68
1924/25	20.8	30.6	-5.0	16.7	.57	1.29	.85	1.87	.65	1.42
1925/26	29.4	77.1	-2.0	19.2	.74	2.21	1.07	2.91	.82	2.25
1926/27	42.7	117.5	—	25.5	.98	2.97	1.28	3.64	.98	2.70
1927/28	62.8	169.2	—	55.1	1.23	3.28	1.48	4.16	1.14	3.37

Source: S.G. STRUMLIN, *Na planovom fronte, 1920-1930 gg.* Moscow: Izd. polit. literatury, 1958. Columns labeled "Expected" are from "The perspective plan for metallurgy for 1923/24 - 1927/28" by Gartvan and Khrennikov, as reported in the cited volume.

TABLE 4

## CAPITAL OUTLAY AND OUTPUT IN MANUFACTURING: PLAN VERSUS EXPERIENCE

Year	In Million Chervonetz						Gross Output in Million Prewar Rubles	
	Capital Outlay		Net Profit		Amortization Funding		Plan	Actual
	Plan	Actual	Plan	Actual	Plan	Actual		
1922/23	—	158	—	112	—	180	1156	1480
1923/24	75	275	—	125	—	185	1371	1920
1924/25	76	426	—	456	—	276	1762	3018
1925/26	80	930	—	614	—	365	2205	4213
1926/27	92	1134	—	659	—	395	2696	5034
1927/28	120	1539	—	836	—	444	3260	6189

Source: S.G. STRUMELIN, *Na planovom fronte, 1920-1930 gg.* Moscow: izd. polit. literatury, 1958, pp. 294 and 207. Columns labeled "Plan" are from Kalinnikov's five-year plan for 32 sectors submitted to Gosplan in December 1923, as reported in the cited volume.

Surprisingly, in view of the subsequent performance, various forecasts proved to be rather pessimistic as shown in Tables 3 to 5.

This was the case with Neopikhanov's prospective plan for metallurgy (1923), and Kalinnikov's sectoral plan for manufacturing (1923). Even Kondratiev's acclaimed empiricism and objectivity did not prevent his projections for agriculture from coming out on the low side.

Statistical evidence in Tables 3-5 suggests that the largest upheaval in manufacturing and overall economic activity took place during 1924-25. According to Table 2, the annual growth rate in 1926 is estimated at 22.2 percent, and the average annual growth rate during 1922-27 at 19.5 percent. This evidence, along with the evidence on capital accumulation, disproves the diehard critics who claim that rapid rates of investment and growth would be impossible in this type of mixed economy. The critics like

TABLE 5

CAPITAL OUTLAY AND OUTPUT IN AGRICULTURE:  
PROJECTIONS VERSUS EXPERIENCE

Year	Credits and Other Financing in Million Chervonetz		Sown Area Million ha.			
	Expected	Actual	Grains		Other	
	Expected	Actual	Expected	Actual	Expected	Actual
1913			—	96.0	—	11.3
1922			—	60.4	—	8.1
1923			—	68.6	—	9.4
1924	58	104	—	78.8	—	14.9
1925	72	157	—	84.1	—	16.0
1926	89	239	—	90.4	—	15.8
1927	106	286	—	92.0	—	16.6
1928	125	384	90.6	90.6	15.4	19.0

Source: S.G. STRUMILIN, *Na planovom fronte, 1920-1930 gg.* Moscow: Izd polit. literatury, 1958, p. 283. Columns labeled "Expected" are from N.D. KONDRATIEV and N.P. OGANOVSKII, "Prospects for the development of agriculture in the USSR," originally published in *Trudy Zemliana*, vyp. I, Moscow, 1924, and reported in Strumilin's volume.

E. Preobrazhensky argued that the huge agricultural population would inadvertently frustrate the efforts to generate investible funds for the demanding nationalized industrial sector. Still others propagated a view, contrary to the evidence, that private entrepreneurs — the hounded “Nepmen” in small-scale trade and consumer industry — could divert for themselves significant shares of capital, raw materials, and labour resources. These critics have overlooked, however, that in the peculiar NEP system the accumulation of investible funds was expedited by powerful trusts and syndicates, state banks controlling the credit, and the state treasury overseeing the budgetary appropriations. Clearly, charges by the superindustrialists that the NEP system was unsuitable for growth cannot be sustained by the evidence.

To be sure, the initial two to four years involved predominantly the reconstruction as such, namely, the restarting of mines, factories and the commercial network. Hence the charge was not without substance that reviving production was recreating the tsarist economy. However, the NEP economy soon asserted its peculiar capacity to generate capital and growth as well as to change the content of expansion in accord with the evolving supply-and-demand forces and policy priorities. This was the case with the innovative and farsighted electrification programme mentioned earlier. Similarly, the launching of the tractor industry reflected a fundamental commitment to mechanize agriculture; a brisk expansion of this leading sector is reflected in the growth of agricultural machine building, estimated at 67 m. rubles in 1913, 105 m. rubles in 1926/27, and 144 m. rubles in 1927/28.<sup>20</sup> The share of total investment devoted to the construction of new factories and facilities grew from 14.5% in 1925/26, to 23% in 1926/27, and 26% in 1927-28.<sup>21</sup>

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<sup>20</sup> G.D. GORDEEV, *Osnovnyie problemy sel'sko-khoziaistvennoi ekonomii* [Fundamental problems of the agricultural economy] (Moscow, 1929), p. 72.

<sup>21</sup> O. KUPERMAN, *Sotsialno-ekonomicheskie formy promyshlennosti SSSR* [Socio-economic forms of production in the USSR] (Moscow, 1929), p. 46.

## 5. *Concluding Reflections*

A review of the NEP experience as a mixed economy supports the proposition that the nationalized enterprises, constituting the core of this socialist system, acquired a leading role in the development process. In this highly concentrated market system, the monopolistic trusts and syndicates proved capable of generating profits, a form of surplus value necessary for capital formation. The observed brisk rate of reconstruction and development did not simply rely on the spontaneous self-interests of numerous economic actors but was spurred by the big-push policy that spearheaded innovation and the large-scale investment projects. This development policy encouraged the linkages and ripple effects throughout the economy, drawing in this manner the vast agricultural sector into the process of industrialization. The NEP episode demonstrates that also in this system industrialization could not avoid the strains due to unequal and changing distribution of costs and benefits. Given the objective of reconstruction and development, the ability of state enterprises to command high prices seemed justified as a method of capital accumulation. But this monopoly behaviour hurt the dispersed private sector, especially the peasants, and threatened the socio-political balance. Thus, while praising the socialist NEP economy as a system conducive to economic development, we do not mean to deny that it entailed such peculiar difficulties as unintended income redistribution.

The evidence clearly shows that in spite of the disruptive socio-political restructuring at the time, the market-oriented NEP system proved its efficiency in the allocation of scarce resources and its effectiveness in generating economic growth. The forced abandonment of the system and the ascent of Stalinism was accompanied by monstrous economic costs and human suffering. The NEP model itself deserves to be understood and preserved for its intrinsic value as a grand experiment and historic precedent.

