Collectivization and socialist agriculture (1917–1992): Revised comparison of the Soviet and East-European experience.

Part III. Stabilization of collective farms, industrialization and collapse of socialist agriculture (1960–1992)

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Abstract. To reassess collectivization and socialist agricultural policy, it is necessary to keep the whole period in view, distinguishing the following phases with basically different political approaches: (1) collectivization under Stalin as based on class war and peasant subjugation to transfer capital from agriculture to industry; (2) collectivization under Khrushchev, striving to complete it, although this policy was basically put in question (in 1953 in the Soviet Union and in 1957 in the GDR and Hungary); (3) efforts to stabilize the economically weak collective farms in the 1960s after finishing collectivization and replacing Khrushchev; (4) the final turn to modernization of agriculture expecting economies of scale through different concepts of industrialization in the 1970s; (5) the failure of these concepts causing a cost trap and enforcing the rehabilitation of small-scale private agriculture in the 1980s. The two first parts considered collectivization in the Soviet Union and Eastern Europe under Stalin and Khrushchev; the third part focuses on the attempts to stabilize collective farms and to finally begin modernization to create industrial agriculture. Due to the myth of agricultural mechanization under Stalin, modernization in socialist countries started only in the 1970s, two decades later than in the West. However, modernization was carried out in the same way as collectivization before — "on the cheap" (agricultural machinery and equipment were below the Western standard). Moreover, by order from above, huge investment was wasted on changes in the size of production units despite economic necessity. Although since the 1970s, most heads of large farms were highly qualified, the command economy did not allow them to manage farms based on their competence. Ruling parties kept control over agriculture and set prices. In the 1980s, when fighting against the cost trap of socialist agriculture, they paradoxically returned to the support of cost-efficient small agricultural production that Stalin and Khrushchev had tried to liquidate. Although the bulk of the workforce was satisfied with working conditions and payment on large farms, agricultural enterprises suffered economically from extreme inefficiency. Only after the fall of socialist regimes did agricultural enterprises manage to prove their competitiveness in the market by finally gaining access to high-quality inputs.

Key words: collective farms, socialist agriculture, industrialization of agriculture, modernization, Soviet Union, Eastern Europe, Kadar, Brezhnev, Ulbricht, Grüneberg, mechanization, private plots, economies of scale

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In the Soviet Union and Eastern Europe at the end of collectivization, collective farms were still economically extremely weak and unable to pay descent wages and provide benefits equivalent even to the low-level of state farms. Collective farms lacked sufficient machinery and equipment to ensure complex mechanization. After collectivization and replacement of Khrushchev, it was necessary to stabilize collective farms first — before starting modernization to create industrial agriculture in the 1970s: the capital flow had to be returned to agriculture in the form of huge state investment, and Stalin's ban on non-agricultural activities for collective farms had to be lifted as it hindered the necessary integration of agriculture with the up- and down-stream sectors of industry.

This part focuses on the enormous efforts that were necessary to stabilize collective farms and then to start modernization of agriculture two decades later than in Western Europe (Wädekin, 1978). First, I will describe the basic policy changes made for stabilization of collective farms: their enlargement, improvement of payment and social-security systems to make work bearable, training of managers and providing skilled labor indispensable for modernization, lifting of Stalin's ban on non-agricultural activities, huge state investment in agriculture and supply of enough machinery and equipment. Second, I will consider concepts of industrial agriculture for the selected countries (GDR, Hungary and the Soviet Union), which were to bring agricultural production closer to upstream and downstream sectors of industry (production of inputs for agriculture, processing, storage and trade of agricultural products) by developing cooperation and integration between enterprises. Third, I will explain why all such concepts led to the cost trap — they ignored the specifics of concentration in agriculture and spent money on ineffective investments). Fourth, I will focus on the following paradox: socialist agriculture started with the intention to liquidate private production but in the 1980s promoted small scale private production as more cost effective than large socialist farms. Finally, I will assess the fate of socialist agriculture after the collapse of socialist regimes, summarizing its advantages and disadvantages.

Stabilization of collective farms in the 1960s after the end of collectivization

Size of collective farms

Collective farms organized during collectivization campaigns were in general small — several hundreds of hectares and often only one village. In the GDR, some villages had two or three small collective farms of different types.

In the Soviet Union, the enlargement of collective farms by amalgamation began in 1950 under pressure from Khrushchev, who

expected economies of scale from such enlargement. After Stalin's death, he restarted the campaign but combined it with turning enlarged collective farms into state farms. Except for Hungary (1956), most socialist countries started amalgamation only after finishing collectivization. Finally, the Soviet Union and the Balkan states with especially extensive use of land had the largest agricultural enterprises. More industrialized countries as the GDR and the Czech part of Czechoslovakia used land more intensively, which determined smaller farms and 3,000–5,000 hectares considered as their optimal size. Hungary and Poland were in the group of medium-sized farms. Until the mid-1960s, the average size of the collective farm in the Soviet Union and Bulgaria was 6,000 hectares; in the GDR, it increased from 240 to 930 hectares (1960 and 1976), in Czechoslovakia — from 400 to 2,000, in Hungary — from 700 to 3,000 (Wädekin, 1978: 38–40, 44–47).

In most countries, collective farms were smaller than state farms and less equipped, which was especially true for the Soviet Union, although the average size of soviet state farms decreased from 1960 to 1976 from 26,000 to 18,000 hectares due to the transformation of collective farms into state farms under Khrushchev. In Romania, the average size of state farms increased from 3,000 to 5,000 hectares, in Bulgaria — from 5,000 to 6,000, in Czechoslovakia — from 3,000 to 6,000, and in Hungary — from 2,500 to 6,000. In the GDR, state farms (mostly experimental or special enterprises) were the smallest and increased only from 600 to 1,100 hectares (Wädekin, 1978: 38–40).

The share of state farms varied greatly across countries. In the Soviet Union, due to Khrushchev's transformation, their share increased from 37% in 1960 to 64% in 1976, in Czechoslovakia — from 15% to 20%, in Bulgaria — from 7% to 16%, in Poland — from 11% to 16%, and in Yugoslavia — from 5% to 12%. In Romania and Hungary, the share of state farm remained at 12% to 14%, and it was the lowest in the GDR (increase from 6.2% to 7.5%) (Wädekin, 1978: 38-40)[1].

Transformation of economically weak collective farms significantly increased losses of state farms in the Soviet Union due to the low procurement prices paid by the state. In addition, the state had to pay wages to the previously unpaid members of collective farms (Wädekin, 1978; Merl, 2020; Merl, 2021). The achieved "economies of scale" was insignificant. Only one aspect of Khrushchev's plan

1. Accordingly, the share of collective farms decreased: in the Soviet Union — to 34%, in Bulgaria — to 65%, in Czechoslovakia — to 61%. However, this share increased in countries in which collectivization was not or had just been finished in 1960: in the GDR — from 73% to 82%, in Hungary — from 49% to 70%, and in Romania — from 50% to 54%. The share of the private sector decreased in the GDR from 19% to 9%, in Hungary — from 32% to 15%, in Romania — from 20% to 16%, in Czechoslovakia — from 17% to 8%, while in Poland and Yugoslavia this share remained above 80%, and in Bulgaria increased from 9% to 10,5% (in the Soviet Union only 1,4% of agricultural area).

was better justified: less collective farms meant less need for reliable chairmen, primary party members; to strengthen collective farms, Khrushchev sent 50,000 skilled workers to the countryside, which was to secure Party's control and improve management.

Wages on collective farms and the end of discrimination against the peasantry

The need to increase the income of collective farmers was realized by all Soviet leaders after Stalin's death. But nobody, including Khrushchev, had an idea how much it would cost and how long it would take to increase rural incomes to at least the level of wages at state farms. Although the agricultural producer prices doubled in 1954[2], the impact on raising the value of labor was insignificant, and under Khrushchev wages grew quite slowly.

By forcing collective farms to immediately to pay for the MTS-machinery, Khrushchev achieved a new reduction of collective farmers' income (Bronson/Krueger, 1971; Wädekin, 1978: 187–188; Merl, 2002: 212–225). Most East European countries made greater progress in improving wages, especially the GDR and Czechoslovakia due to a shortage of agricultural workers. Almost all countries used a system of remuneration based on labor units, which meant distribution according to the "remainder principle", which was introduced under Stalin in the 1930s and only at the end of the agricultural year ensured a "distribution of gains" based on the labor units earned (very low and uncertain income, cf. Part I).

The first step to improve remuneration system was the "advanced payment" one or several times a year before the final "distribution", which was introduced in the Soviet Union in 1933/1934 (cf. Part I). Many East European countries introduced "advanced payments", first one or several times a year and finally monthly. In the GDR, since 1959 up to 70% of planned distribution was paid in advance; Hungary allowed advanced payment in 1951, and in 1955 collective farmers got the right to demand it; Romania allowed advanced payment in the 1950s to distribute up to 50% of the expected money income in advance, Poland — up to 60%. In the Soviet Union since the mid-1950s, 50% of the expected money distribution was paid in advance (Wädekin, 1978: 114–123; Wädekin, 1974: 235). After 1953, most countries started to gradually substitute payment in kind by cash payment. In Hungary, until the early 1960s, monthly salaries

2. Grain prices increased sevenfold, meat prices — fivefold, and milk prices — threefold. In 1954, tractor drivers were included in the state list of paid workers at the MTS and got monthly wages. Nobody had an idea about the level of prices necessary to cover the full costs of production, since under Stalin labor costs were ignored.

were quite rare and were finally introduced only in 1966 — based on roughly 80% of the calculated yearly wage (Swain, 1985: 37–50).

Another way to improve remuneration was a guaranteed minimum for the labor unit. In the Soviet Union under Stalin, such a minimum was paid in cash only to tractor drivers and then to chairmen, which reduced distribution among other members according to the remainder principle (Merl, 1990b, 96–120, 166–81). Since 1954, the GDR paid the guaranteed minimum for the labor unit in fully socialized collective farms. The state had to subsidize these payments, as hardly any collective farm had sufficient income. After the end of collectivization, in 1962 the GDR replaced the minimum wage for labor units by the guaranteed minimum income of 3,120 marks a year. Collective farmers earning more than 8,000 marks were taxed on a progressive scale (Wädekin, 1978: 182).

Only in the GDR collective farmers reached the level of payment of industrial workers already in 1964, while in the early 1970s income inequality among state farmers in Romania, Soviet Union and Bulgaria remained. In Hungary, additional income from the allowed family work on private plots partially compensated for low payments in collective farms (Wädekin, 1978: 182). For a long time, Hungarian collective farms benefited from the peasant "self-exploitation" on private plots by not paying sufficient wages to their members, who received relatively attractive and predictable rewards from work on their plots (Swain, 1985: 6–7, 51–79)[3]. In most countries, it took until the mid-1970s to provide collective farmers with monthly wages and of the same level as state farmers. It took even longer to reach the same level of wages as workers in industry or transport, if it was achieved at all. In the Soviet Union, this happened only in the 1980s, in Hungary — in 1977, when monthly wages replaced payment by labor units[4], which once again proves how deplorable the level of payments was during collectivization.

Low incomes in collective farms were partly determined by their inability to provide work for all members throughout the year — most of them only received seasonal work. To what extent collective farms were unable to provide their members with work (until they were prohibited from non-agricultural activities) is evident from the very low number of requested "minimum labor days". When they were first introduced in the Soviet Union in 1939, only 60–80 labor days were required, while in

3. Family labor on private plots was intended not so much for profit maximization as for balancing the use of the outputs, independent of national labor costs, and disadvantages of having no labor at all: "Wage costs are not taken into account" (Swain, 1985: 2–6).

4. After the end of collectivization, from 1961 to 1968, wages on Hungarian collective farms improved and since 1968 were considered production costs. Since 1977, social mobility had declined, and collective farms achieved relative stability (Swain, 1985: 4, 53).

the GDR and Czechoslovakia in the 1950s — 150 labor days, in Poland — 100, in Hungary — 80 in 1951 and 120 in 1955. After Stalin's death, collective farms were often allowed to set the minimum number of labor days (Wädekin, 1974: 80, 114–132); however, collective farms were never obligated to provide full-time jobs to their members (Wädekin, 1974: 109). In the Soviet Union in the 1970s, the average collective farmer had only 200 labor days, in Romania — even less (Wädekin, 1978: 183–184). In Hungary, collective farms employed only 59% of men and 12% of women full-time; therefore, most young men left for the industry — by 1967, the average age of collective farmers reached 54 years. Thus, labor on the relatively non-mechanized household plots was no longer considered a threat to cooperation" (Swain, 1985: 83-85). Mechanization increased the seasonality of work even more.

Legal discrimination of collective farmers — a unique feature of the Soviet Union: they were deprived of passports after the 1932 famine, and 1936 "Stalin's" constitution explicitly excluded them from the state social security system. Both types of discrimination ended in the 1960s — 1970s.

In addition to improving the wage system, the state gradually included collective farmers in the state social security system. In this respect, the Soviet Union lagged significantly behind Eastern Europe. It was not until 1964 that Khrushchev finally introduced old age pensions for collective farmers. In general, their old age pensions were lower, and in the Soviet Union even significantly lower than those of industrial workers, and often a minimum period of membership in the collective farm was required.

Some East European countries like the GDR initially included collective farmers in the state social security system (including healthcare), but until 1959 with lower social benefits. Czechoslovakia included collective farmers in the state health insurance system in 1953 and in other forms of social security — in 1962. Hungary started to include collective farmers in the social security system with introducing old-age pensions (for those who joined before 1960), and later expanded the system to all, but the social security system in the field of healthcare and maternity was introduced only in 1966, social benefits were improved in 1968 and reached the level of industrial workers in 1977 (Swain, 1985: 39–40). In Yugoslavia, old-age pensions were introduced in 1954 (in 1961 combined with pensions paid to other workers), in Bulgaria — in 1957, in Poland — in 1962, in Romania — in 1966, in Albania — in 1972. In Bulgaria, until 1959 distribution of old-age benefits depended on the land brought in (Wädekin, 1978: 193–194).

Modernization and skilled workforce: how mechanization changed labor

In the 1960s, the real start of mechanization and modernization changed the demand for labor: new occupational categories emerged

and the need for skilled labor increased rapidly. Stalin's combination of collectivization with "class war", followed by Khrushchev's fight against small private agricultural production, promoted not only in the Soviet Union but in all collectivizing East European countries more flexible and better prepared agricultural systems. Unlike Western countries[5], the available labor force on collective farms could not satisfy the need for skilled workers, which is why such workers were brought to the countryside (Swain, 1985: 83–113).

Excess of unskilled labor in collective farms had negative consequences for modernization: as cheap unskilled labor was in excess supply (except for the GDR and the Czech part of Czechoslovakia), farms experienced less economic pressure to replace labor with capital. While in the West an increase in labor costs determined complex mechanization, there was no such pressure in most socialist countries, which slowed down complex mechanization (cheap unskilled labor could be used for loading and other manual work) and started de-peasantization — collective farmers were turned into agricultural workers and lost overview over of production. Almost all socialist countries had to bring in qualified labor from outside countryside, which created serious and practically insurmountable problems, for instance, in the Soviet Union remote rural areas did not have a developed infrastructure, which made them unattractive. Skilled workers could find work everywhere, and among those trained for jobs in agriculture the turnover rate was extremely high, for instance, in the Soviet Union tractor drivers trained in the 1960s–1970s left their job after only 11–13 months (Merl, 2020; Merl, 2021). The situation was less dramatic but still difficult in countries like the GDR with the well-developed rural infrastructure. A detailed study (Swain, 1985) on this issue was conducted only in Hungary, which is why further I will focus on the Hungarian case; however, all socialist countries had similar problems when starting agricultural modernization.

Collective farmers can be divided into "mobile" members, able to use their skills everywhere, and "immobile" members, unskilled and fit only for manual labor. Among the "mobiles", there was a high staff turnover. In Hungary, among those working with machinery and chemicals, in the administration and management, a high share worked in the position for less than three years; many "immobile" members were allowed to work on their plots, which were mainly pensioners, especially women (Swain, 1985: 93–104).

Nowhere were skilled workers willing to work for labor units that had no or indefinite value. Already in the 1930s, Soviet collective

5. In Western countries with private family farms, skilled labor was recruited from farms: younger family members were flexible, capable and willing to acquire the skills necessary for modernization and development of private farms.

farms had to hire a limited number of skilled workers needed (Merl, 1990a: 383). After the liquidation of the MTS, collective farms had to employ skilled workers and pay them wages in cash. With the development of mechanization, the number of hired workers increased dramatically: thus, in Hungary in 1961 collective farms had to hire 10,000 skilled workers, in 1967 — 200,000; about 40% of them were permanent employees (Swain, 1985: 37–50, 85–88).

Managers for enlarged collective farms

Under Stalin, heads of (chairmen) of collective farms were usually political cadres or workers send from outside by the party, i.e., they knew practically nothing about agriculture. After Stalin's death, the situation changed radically: the share of collective farm chairmen and state farm directors with higher specialized education significantly increased. In Hungary, since 1957, directors were more often selected by members rather than "elected": local farmers, who had successfully developed their farms, were often elected to management positions. In the late 1960s, with the enlargement of collective farms and the transition to industrial agriculture, the situation changed again — now leadership positions required a thorough training, increasingly in higher education institutions. Training "on-the-job" could no longer provide necessary qualification and knowledge. Thus, the generation of successful middle peasants was being replaced by young, highly qualified, technically and politically educated managers: "a new stratum of technical experts" became chairmen of state and collective farms (Swain, 1985: 116, 114–129).[6]

Even in Hungary, the party retained significant control over the selection of chairmen, which was most efficiently exercised through their appointment. With the change of the statute in 1967, chairmen won control over daily economic activity on their farms — decided on methods of implementing plans and had freedom on decisions concerning labor (including its manipulation) (Swain, 1985: 182, 17–20). However, despite the intentions of the New Economic Mechanism, managerial autonomy remained limited in some areas, as the government maintained strict control over investment funds and capital flows (Swain, 1985: 11–16, 133–161).

In 1968, when farms became autonomous cooperatives, many heads had a university or technical college degree, while in 1960, only 4% had a high school diploma (43 % in 1974) (Swain, 1985: 116–

6. Swain analyzed the extent to which farm management was limited from below (1985: 149–159): the general meeting was rather a theatrical event to show and celebrate consensus. At board meetings, even important financial decisions were generally made without discussion. Only at workplace meetings, the management had to convince members with veto power.

122)[7]. Upward social mobility from ordinary members to managers of collective farms was almost impossible after 1968. In 1974, a "triple requirement" for management positions was introduced: political suitability, academic and political qualifications, managerial abilities. Thus, the party introduced special requirements to political and educational qualifications of farms' heads, which ordinary members could not meet. Until the late 1970s, "cooperative farm management" was a separate body consisting of carefully selected specialists capable of organizing the efficient operation of large farms (Swain, 1985: 117, 128–129)[8]. In Hungary, farm management was also a man's world — only 8% of chairmen were women (Swain, 1985: 119–122). Among senior managers (except for financial managers), younger people often were better qualified than the older ones. The most qualified young managers were highly mobile and had high turnover: in top and middle management, 46% of chairmen, 65% of chief agronomists, 50% of financial managers and even 81% of middle managers had less than five years of experience in their positions (Swain, 1985: 124–126).

The end of Stalin's ban on non-agricultural activities in collective farms

Under Stalin, non-agricultural activities were not allowed for collective farms: otherwise, they would cease agricultural production, which would only bring them losses due to the low state prices for producers. This ban was copied in the collective farm statutes of all East European countries even under Khrushchev[9]. As before collectivization many small farmers received income from non-agricultural activities, this ban worsened the income and employment situation in collective farms (Wädekin, 1978: 265–275).

Only in the 1960s, after collectivization was completed, the ban was lifted. In Hungary until 1966, despite underemployment, only 1% of collective farmers were engaged in non-agricultural activities (Wädekin, 1978: 238; Swain, 1985: 141). After the ban was lifted in 1967, the situation changed: in Hungary and most other countries, agricultural producer prices were kept low, while non-agricultural activities were better paid. Therefore, the lifting of the ban had an unexpected effect: cooperative farms started competition with industrial enterprises for skilled industrial labor (Swain, 1985;

7. In 1968, still 52,5% of chairmen were former farmers and had no special education.
8. Control was ensured by informal networks; only the party issued the necessary "certificate of trust", and a third of chairmen hold party positions.
9. Cf. Part I: the artel statute of 1935 mentioned only the task to develop handicraft and cottage industry, in 1952 it banned non-agricultural, side activities for collective farms. In the GDR, the 1959 statute allowed processing and construction activities for farms (Wädekin, 1978: 124).

Varga, 2021). Instead of recruiting their unskilled unemployed workers, many farms employed qualified specialists from outside for highly profitable non-agricultural activities. Thus, from 1968 to 1970 processing increased by 113%, construction — by 165%, other industrial activities — by 110%, and direct marketing to consumers — by 47%. Without strict state regulation, cooperative farms could offer qualified workers higher wages than the industry, which is why farms were criticized by the "industrial lobby" accusing them of "private enrichment". Some heads of cooperative farms were brought to criminal responsibility, and in the 1970s show trials followed (Varga, 2021: 232–241, 282–283). The Hungarian government banned the "poaching of labor" from industrial enterprises and the leasing of collective farmers to industrial enterprises (Swain, 1985: 140–146).

Production and marketing of non-agricultural products significantly raised incomes of the Hungarian cooperative farms: in 1973, they received 21% of their income from non-agricultural activities and 9,8% — from industrial activities; in 1980, they still provided 4.4% of total industrial production, 6.5% — of construction and 9% of food processing. In all countries non-agricultural activities reduced the labor out-migration and allowed collective farms to provide their members with more stable work and wages (Wädekin, 1978: 281; Swain, 1985: 140–146). In the Soviet Union, the ban on non-agricultural activities for collective farms was lifted after Khrushchev's replacement — non-agricultural activities in the countryside received support, especially in construction.

Delivery of machinery and equipment and state investments — from "collectivization on the cheap" to "mechanization on the cheap"

In the 1960s, despite propaganda, official statements and dominance of large enterprises, mechanization in all socialist countries lagged significantly behind mechanization in the West, even compared to family farms (Wädekin, 1978: 12–17). Except for the GDR, in all countries fixed capital per worker in agriculture was lower than in industry and construction (Wädekin, 1978: 161; Merl, 2021).

To reduce this gap, the Soviet Union needed large state investment and an increased supply of mechanized traction power, machinery and modern equipment. The supply of machinery and equipment did increase sharply, but in most countries their quality lagged behind Western standards. The Soviet Party and Gosplan tried to save on the high costs of building new production lines and factories for the production of specialized, high-quality equipment by ordering other industrial branches to engage in the production of agricultural machinery as a sideline. From this primarily livestock production suffered, including the supply of fodder (Merl, 2021; Wädekin, 1978: 166–167). The need for internal transport, extremely important

for large agricultural enterprises, was often ignored (Merl, 2020; Merl, 2021), which contributed to the waste of scarce resources: the production and supply of low-quality equipment was also financed, although this did not lead to the necessary increases in efficiency and productivity to compete with the West. While the replacement of Khrushchev put an end to "collectivization on the cheap", most socialist states, following the example of the Soviet Union, replaced it by "mechanization on the cheap". Only Hungary chose a different path and imported highly efficient Western machinery, which led to impressive increases in crop yields, especially for corn and grains.

Until the early 1960s, in all socialist countries capital input in agriculture was below the share of agriculture in the total net product. The redistribution of capital to industry continued in the 1950s but on a much lesser scale than under Stalin. Only after the end of collectivization and the replacement of Khrushchev, the flow of capital changed direction, and investment in agriculture increased to stabilize collective farms and begin modernization (Wädekin, 1978: 131–132). In all countries, agriculture turned from a supplier of capital to industry to a net receiver. The most significant growth in investment in agriculture was observed in Czechoslovakia and Hungary; the GDR kept investment in agriculture at a high level until 1973; Hungary reached the peak of investment in 1969–1971. In the Soviet Union, significant net investment in agriculture started only under Brezhnev. After 1970, Poland, Czechoslovakia and the Soviet Union further increased agricultural investment (Wädekin, 1978: 122–123). In most countries in the early 1970s, significant investments were made in improving soil quality, equipment for industrial animal husbandry, greenhouses, feed mills, warehouses, and so on.

Some of the investments were wasted, as they were used primarily not to improve production efficiency but to constantly change the size of production units, replacing only previously unnecessary buildings. Under collectivization, much of the capital stock of private farms that had fallen into disuse was replaced. The enlargement of collective farms required new investments to replace the existing farms, corresponding to their size. When at the turn of the 1970s the countries started to implement their models of industrial agriculture, a large part of investment was again used to build production facilities on a new scale. Despite a significant increase in investment, production did not increase accordingly (Wädekin, 1978: 126–130, 135–136)[10].

10. The change of the production unit size had little effect on yields and efficiency. A craze began for the huge and spectacular. Limits were set not so much by the lack of funding as by the insufficient capacity of the state-owned industry. The low quality of the machinery caused problems and the lack of spare parts. In all countries, construction materials were in short supply.

The turn to modernization in the 1970s: cooperation, integration, and "industrial agriculture" in the GDR and Hungary

In the 1970s, all socialist countries finally started modernization of agriculture in the interests of agro-industrial cooperation and integration — horizontal cooperation and more challenging vertical integration of agricultural enterprises with up- and downstream industrial branches, and in this respect the GDR and the Czech part of Czechoslovakia were pioneers. Only Bulgaria, producing large quantities of perishable food (fruits, vegetables) and processed products like tobacco and wine, joined the middle group together with Hungary, while the Soviet Union and Romania were far behind, although in the late 1920s the Soviet Union had been a leader in industrial agriculture. The construction of first agro-industrial complexes had started in 1930–1931 but was never finished, as Stalin did not provide the necessary financial support and even separated processing from agriculture to make it a state monopoly with high profits for the state budget (Merl, 1985: 363–369; Merl, 2022)[11]. The step to vertical integration was connected (except for Poland and the Soviet Union) with creating ministries responsible not only for agriculture but also for input-production, procurement and processing industries. The Soviet Union followed only in 1985 with the creation of Gosagroprom (Wädekin, 1978, 265–298; Merl, 2021).

The optimal size of large farms depended on infrastructure: only the GDR, Czechoslovakia and parts of Poland and Hungary had a developed infrastructure — economic, social, communicative, and transport). Much of the Soviet Union lacked developed infrastructure. The economic advantage of large production units reached its limits with certain sizes, especially as in-farm transport costs increased with the size. While in the West, the concentration was more oriented toward the market and its stabilization, socialist countries primarily aimed at increasing the capacities of production. Except for Hungary, the impulses for enlargement were from above, not from farms (Wädekin, 1978: 290–293). Another task was to harmonize property forms with the beginning of industrialization of agriculture. Since 1971, the GDR formed large production units, in which previous state and collective farms worked together, trying to unify wage and bonus systems. Hungary kept the autonomy of state and collective farms until the mid-1970s, and Romania throughout the entire period, while Czechoslovakia focused on contracts for integration (Wädekin, 1978: 282–289). The Soviet Union lagged behind with harmonization, since Khrushchev supported the transformation of collective farms into state farms.

Eastern European countries and the Soviet Union especially lagged behind the West (and American agribusiness) in the upstream vertical

11. For the concepts of industrial agriculture of Chayanov's group see Part I.

integration of agriculture into agricultural machinery production, chemical industry and other input-producing branches, which affected primarily animal husbandry. In 1975, the share of industrial livestock holdings in Bulgaria was 20% for slaughter pigs, 50% for slaughter poultry, and 25% for eggs; in Czechoslovakia — 83% for milk cows, 48% for cattle, 38% for pig fattening and 94% of laying hens. In 1975, the Soviet Union had only 668 large fattening units producing 2.5% of beef and 4% of pork. In addition, some collective and state farms kept large numbers of cattle and pigs. In the GDR, poultry industry played a leading role, producing 54%t of poultry on industrialized farms (Wädekin, 1978: 278–280).

Further I will describe the transition to industrial methods of production in the GDR[12], based on the most radical concept, and in Hungary that used Western technology with temporary impressive success.

GDR: industrial agriculture with separate crop production and animal husbandry

In 1963, Ulbricht declared the intention to switch to industrial methods of production, i.e., agriculture should be linked to industrial branches, therefore, the living conditions in the countryside should be harmonized with those in urban areas (Bauerkämper, 2002: 194–205). The concept development took time. The transition to a new agricultural structure started with administrative reorganization and consolidation of collective farms — integrated large enterprises were to cooperate.

The administrative reform started in 1963. Following Khrushchev's rapid reorganizations of replacing ministries by "councils", the GDR replaced its Ministry of agriculture and forests by Agricultural council that was supposed to manage agricultural production, working together with the committee for agricultural procurement and the agricultural bank. In 1968, to link agricultural production with processing, councils for agricultural production and food industry (RLN) were established, combining agricultural councils with the first level of processing and with committees for agricultural procurement. RLN were responsible for comprehensive management of production, procurement and processing of agricultural products. As the administrative turn to "councils" did not solve any problem, in 1971 the GDR replaced councils by the Ministry of agriculture, forest and food industry.

12. See, e.g.: DDR-Handbuch, 1985: 9–31, 783-812; Agrar-Fachtagung, 1989: 107–121; Hohmann, 1983. I also refer to my lecture on „Agrarsoziale Systeme der sozialistischen Länder Osteuropas" at the Rheinische Friedrich-Wilhelms-Universität (Bonn) in the winter term 1990/1991.

After the abolition of compulsory deliveries in 1963, the GDR introduced the contract system for the delivery of agricultural products to the food industry. In 1964, the number of plan criteria for farms was reduced to the indicators of market production, investment and supply of fertilizers, on which collective farms were to make their delivery plans. When the plan was accepted, the collective farm was to sign contracts with the food industry. To take into account the specifics of the agricultural production circle, annual plans were replaced by two-year planning, based on the production level of the previous year. In 1964, the system of double prices (lower for compulsory deliveries and higher for free deliveries) was liquidated for crop and poultry production, in 1968 — also for animal husbandry.

Thus, in the 1960s, the GDR replaced administrative planning with more economic regulations but under the state control. For some products, compulsory deliveries were kept, and the state insisted on control over prices. As the prices did not provide incentives to increase production, in 1971 the state returned plan indicators for sugar, milk, meat and eggs (Wädekin, 1978: 231–234).

In principle, prices should cover production costs and provide certain profit (about 40%) to ensure capital accumulation for investment (Wädekin, 1978: 194–222)[13], which is why the GDR increased the agricultural producer prices: in 1955, they were 20% above such prices in West Germany, in 1971 — 80% above, although inflation in the GDR was lower. This data reflects a significant increase in costs, as prices for equipment and agricultural machinery rose in 1966. In practice, the concept that farms were to ensure necessary investments themselves did not work. Moreover, some collective farms still needed state subsidies to pay the guaranteed minimum to their members.

The implementation of the new structure of agrarian enterprises began in 1967/1968 with the declared goal of concentration, specialization and knowledge intensification of production. Concentration was to be based on both horizontal and vertical cooperation: cooperative associations (KOG) united enterprises in special production branches, especially animal husbandry. This horizontal cooperation contributed to the economies of scale and delivered large volumes of standardized products for the processing industry and trade. In addition, cooperative unions (KOV) were to support the KOG through vertical links with the processing industry. Based on long-term contracts, the KOV were expected to deliver standardized products according to the assortment set by the processing industry but considering (which differed the previous inflexible compulsory deliveries) the wishes and needs of industry and consumers. In addition, central planning should be replaced by a network of contractual relationships.

13. In theory, agricultural producer prices should cover the "average costs of production" (including wages) and provide about 40% "profit" for capital accumulation for investment.

Horizontal cooperation brought together different types of enterprises, since there was pressure to change the structure of production due to the decision to deliver machinery systems only to enterprises consisting of 4 to 10 units, which determined the enlargement of production units. In land reclamation, construction and animal husbandry, cooperatives were created through joint investments by participating enterprises. Until the end of the 1960s, cooperation covered all branches of production. De jure enterprises kept their independence but organized and planned the joint use of their machinery; thereby councils served as institutions of coordination and control.

Under the influence of the Central Committee Secretary for Agriculture Grüneberg, the 8th SED-Party congress in June 1971 made the concept of large industrial production mandatory in agriculture, rejecting giant collective farms and insisting on cooperation as the main way. Animal husbandry and plant production were to be divided into specialized enterprises, which meant the third change of agricultural production units in a decade and implied the need to adapt stables and other constructions to the new size.

Grüneberg justified the concept by the supposed law of development, according to which in agriculture large-scale production had to replace small-scale production due to the concentration of land and means of production in connection with the specialization of enterprises. In this sense, agriculture would benefit from the economies of scale through serial or mass production. Grüneberg declared four goals: separation of animal husbandry and plant production in agricultural enterprises, reduction of per unit costs by producing in large quantities, increase in profitability and labor productivity. In 1974, new norms for the size of specialized units were published: stables for 1,930 milk cows and for fattening 24,000 pigs; in plant production, one main fruit/product should be produced on 5,000 to 6,000 hectares; for suitable vegetables and fruits, industrial production should start; special services like fertilizing, plant protection and transportation should be provided for several production units by specialized brigades or enterprises.

Grüneberg expected a constant increase in production and harmonization of living conditions in urban and rural areas. Since 1975, he pushed [together with Günter Mittag, the Vice Head of the Council of Ministers and later the Central Committee Secretary for Economy] the separation of animal husbandry and plant production at collective farms. The delivery of cheap means of production (fertilizers and machinery) was supposed to increase yields and productivity and to reduce production costs, but the effect was opposite: production costs continued growing, as agricultural input prices rose sharply in the 1970s, leading to a cost trap.

With the transition to the concept of industrial production, cooperative associations (KOG) in animal production were replaced by independent production associations (KOE) for special kinds of

production. KOE had a special legal status and own capital, involved collective and state farms that formed a council. Since 1972/1973, cooperative associations in plant production (KAP) were formed as independent, all-inclusive complexes, in which enterprises of different property forms worked together, jointly cultivated fields and pastures. In early 1974, there were 1173 KAPs with the average of 4,000 ha, but the merger into "fully corporate" villages was pushed ahead (Bauerkämper, 2002: 199–202; Steiner, 2004: 184–187). Such concentration reached its peak in 1977/1978, but the larger size of farms increased transportation costs, and heavy machinery reduced soil fertility. Finally, 1,210 KAP or ZBE plant production were organized. The forming of inter-company institutions (ZBE) in animal husbandry turned out to be much more complicated — it was slowed down by the lack of huge investment needed to construct new stables of necessary size. Thus, in the mid-1970s, there were only 367 ZBE in animal husbandry.

Previous collective and state farms remained as "trunk-collective/state farms" responsible only for those branches that were not or could not divided into production unions. In 1975, the number of collective farms decreased from about 9,000 to 4,574 trunk farms, mainly in animal husbandry (in 1980 — 2,899). As the combination of different forms of property gave rise to many problems even in the GDR, in 1977 further reorganization started — most ZBE and KAP were reorganized into collective farms in plant production or animal husbandry, and the development of the KOE in animal husbandry led to further concentration.

Hungary: competition and highly efficient Western production systems

Hungary was temporarily successful due to the chosen path to industrial production in agriculture but quickly reached economic and moral limits of this approach (Varga, 2021: 221–276)[14], finally falling into the cost trap due to the extreme increase in the costs of industrially produced inputs, while agricultural producer prices were kept low. Political restrictions on freedom based on the market principles never ceased (Wädekin, 1978: 221–234).

Due to enlargement, in 1970 the number of collective farms decreased to 2,894, while the average sown area increased from 700 to 1,700 hectares (Merl, 1988: 139–170; Varga, 1984: 198–214). From 1968 to 1975, their technical base was replaced with the production systems imported from the West. Under the further pressure to enlarge, the

14. Varga (2021: 245–-252) shows the limits of this agrarian miracle, stressing that in addition to the moral condemnation of "greed of profit" agricultural policy led to economic difficulties.

number of collective farms fell to 1,800 in 1975 and to 1,400 in 1985, reaching an average size of 3,000 hectares.

In 1960–1963, Hungary borrowed Western agricultural technology with the state financial support to ensure an industrial poultry production at the state farm Bobolna. In 1963, in Eastern Europe this farm laid the foundation for industrialized poultry meat and egg production. Then the farm spread the Western production technology in Hungary, offering support to partner farms: they followed the guidelines of the Bobolna state farm, the system owner in Hungary (in 1964, the farm had 63 and in 1967 — 217 partner farms) (Varga, 2021: 162–167).

After Hungarian farms were freed from the state command in 1967 and became cooperatives, they participated in the transfer of Western closed production systems. First, the focus was on corn production, but later this technology became widespread. In general, state farms served as a partner of the Western company and a "mediator of transfer". Cooperatives were free to choose production systems they wanted to join and not to take part in this process at all. Hungary succeeded in integrating "highly developed industrial-style production models of capitalist agriculture", which competed in agriculture (Varga, 2021: 183–220, 281–282). Although adopting through this "Americanization" highly efficient Western technologies, Hungarian farms hardly changed their operational structure.

In the early 1970s, the government promoted the turn to the organization of agricultural production systems with state subsidies. These systems started to work in plant production in 1971, primarily with corn and wheat, and later in animal husbandry (starting with industrial poultry production). In 1981, there were 21 different systems in grain production working on 2.5 million hectares, about 60% of land. In total, more than 70 systems operated in about 80 branches.

Production systems contributed to the technological modernization of agriculture in Hungary, keeping it close to global standards and disseminating progressive methods by supplying hybrids, seeds, fertilizers and high-quality (Western) machinery, including repair services and spare parts to ensure uninterrupted operation of machines even during peak periods. Production systems provided additional services: consultations on production methods and technology, scientific examinations to choose the best sorts of plants and fertilizers, purchases of means of production for their members farms. Some systems offered the total cycle of production (including seeds and machinery), some took care of processing and marketing (Varga, 1984). Other East European countries imported only Western models of machinery and equipment to produce improved equipment, but in general, they did not provide a full range of services and did not allow competition between suppliers to improve the quality of services (Merl, 2020; Merl, 2021).

Most cooperative farms joined several production systems (on the average 3 to 4) for different branches of production. Compared to

those not joining the systems, in cooperative farms yields were 15% higher, and costs for their own farms were lower. Most impressive achievements were in corn production due to the uses of hybrids — yields doubled and reached the Western standard; only two workers were needed to work on several hundred hectares; wheat yields also doubled. If interaction with the production system was not profitable, cooperative could break the contract.

However, investment remained a problem, since not all enterprises were successful enough. Some farms achieved very high yields of 6,000 liters of milk per cow, while on other farms yields remained significantly lower. While the production of corn was mechanized to 87%, mechanization of potato production was only about 50%. The use of irrigation was insufficient, and the average level of fertilizer and chemicals use lagged behind not only Western Europe but also the GDR and Czechoslovakia (Varga, 1984).

Soviet Union: staying behind in the transfer to industrialized production

In 1971, the Soviet Party Program mentioned agro-industrial complex (AIC), but except for some concentration in production hardly anything happened. Especially animal husbandry lagged behind in modernization on an industrial basis. In plant production, the sizes of farms would have allowed industrial production, but mechanization in general was poor and did not meet the needs (Wädekin, 1978: 270; Merl, 2020: 2021). Due to a shortage of harvesting equipment, it was used in different places on different farms, and during the harvest it was transported from west to east (Wädekin, 1978; Merl, 2021)[15].

After the 1976 Politburo decision, the reconstruction started in three directions: cooperative associations of enterprises (for instance, poultry and fruit production); integration of previously independent enterprises or branches by merger (until 1979, in combination with the specialization on milk, cattle or vegetable production, about 9,000 of such integrated units were formed); until 1979, about 800 AIC were organized, also including (in general only downstream) processing and trade, rarely upstream input-producing industry. In 1983, there were about 3,000 AIC; in 1985, their reorganization ended.

The 1982 Food Program was the first to consider the whole agricultural sector: upstream industries, downstream industries, processing, trade, and infrastructure. In 1985, Gosagroprom was established as an administrative center of the agricultural sector, including its relationship with industry. Thus, agricultural management shifted from a sectoral to a territorial principle, as losses due to lack of coordination were enormous and investments proved ineffective. Now all enterprises of the district were united

15. Even in the GDR some machinery had to be used at different places.

within its AIC, to coordinate planning district agro-industrial-unions (RAPO) were established (3109 in 1985). As local costs often did not correspond to the prices set by the state, many AIC decided to work locally with own prices.

Why industrial agriculture in all socialist countries led to the cost trap

The assumption that the transition to "industrial forms of production" would reduce production costs due to effects of the economies of scale did not work in all socialist countries. Often scarce resources were wasted to adapt production to the increasing sizes of production units: in the GDR, an increase in size contributed only to an enormous increase in unit costs of production. Further, I will consider some reasons for the cost trap, starting with negative effects of work alienation and then focusing on ever-increasing prices for agricultural input, increasing capital input without free labor, and ignorance of the specifics of concentration in agriculture.

Alienation from work: loss of control over agricultural production

Agricultural labor productivity in the GDR lagged behind that of West Germany. One reason for this was alienation from work under the enlargement of farms, which determined the loss of societal control over work. While hierarchy in smaller farms was based more on trust than on purely administrative control, the situation changed with the transition to industrial production. In the GDR, the separation of plant production and animal husbandry contributed additionally to alienation from work. Brigades in plant production became responsible for fields up to 15,000 hectares — they had to work in different villages located in different places. Nobody cared about the quality of their work, which led to the highest possible payment for poor-quality work, regardless of yields or other productivity criteria. In the GDR (Eckart, 1984), 'invisibility' of results contributed to the loss of interest in work; narrow specialization determined the monotony of work; a significant share of working time was lost on transporting workers to and from remote fields; unmarried young workers were housed in barracks. Thus, industrial agriculture implied the loss of personal connections at work: administration was perceived as anonymous bureaucracy, running the farm from its office and being unaware of the practices used. On the contrary, collective farm workers were quite happy with the constantly changing nature of their work, which allowed them to control the entire production process.

Therefore, in the GDR agricultural sociologists proposed to change the organization of work: members of collective farms should directly

and actively participate in decision-making, including on issues of ownership and responsibility. In the late 1970s, the GDR started a campaign to bring back to the village the younger generation who left the countryside due to dissatisfaction with working conditions. This campaign showed results: in the late 1980s, about 50% of new skilled workers came from within collective farms, while among those who came from outside, the turnover rate remained extremely high[16].

Rising prices for agricultural input despite the lack of more efficient equipment

Since the early 1970s, the prices for agricultural inputs increased sharply in all socialist countries, mainly due to the general practice of agricultural machinery plants in the command economy — they often stopped to produce "old" but inexpensive machinery, replacing it with the "new" one for higher prices but in most cases no more efficient and in general below Western standards. Thus, unlike in Western agriculture, the price increase was in no way offset by increased efficiency and higher yields. The situation was exacerbated by the lack of improvements in services and a chronic shortage of spare parts. In the 1970s, livestock and potato production costs in the Soviet Union increased by 50–70%, while grain production costs rose by 45%. Only poultry and egg production costs increased moderately — by 3–5%. In the 1970s, in the GDR, plant production increased by 14%, while its production costs — by 21%t; animal husbandry production increased by 10%, while its production costs — 13%.

In the statistics, these increased prices were ignored, and significantly more expensive new cars (100 units) were included in the calculation as if the price had remained the same (Wädekin, 1978: 212). Many countries either subsidized agricultural input prices or raised state prices for producers. The Soviet Union periodically wrote off old collective farm debts. Thus, instead of eliminating the causes of rising input costs all countries provided additional subsidies to maintain "control" over agricultural prices.

Collective and state farms hardly had any chance to make choice according to their needs: investment, machinery and equipment were provided and distributed by the state; decisions on investment in irrigation and drainage were made by the ministry; farms could only refuse to accept investments. The Soviet Union spent a lot of money on irrigation and drainage systems without any visible effect on yields.

After the liquidation of compulsory deliveries (in Hungary and Romania at the beginning of 1957, in the Soviet Union — in 1958,

16. According to Kurt Krambach, agricultural sociologist at the GDR Academy of Science (the author's interview in 1990), people perceived their collective farm as a state rather than "their" enterprise.

in Bulgaria — in 1959, in Czechoslovakia — in 1960, in the GDR — in 1964), the importance of the state producer prices grew: farms could be more sensitive to prices, leading to losses. Therefore, in the mid-1960s most countries returned to split producer prices to increase incentives for exceeding planned production volumes, for which higher prices were paid. In the Soviet Union, this had a crazy effect: in years with good harvests — due to surcharges for deliveries in excess of the planned volume — prices were significantly higher than in years with poor harvests. In 1983 in the Soviet Union, despite increased producer prices, 24% of collective farms and 42% of state farms could not accumulate capital, as many procurement prices did not cover production costs (covered only 70% to 75% of production costs for potatoes, beef and pork, 80% for vegetables and 90% for milk). In response to rising prices, which led to chronic losses, collective farms reduced production of these products.

An increase in capital input without a corresponding reduction in labor input

In Western agriculture capital input substituted labor input, thus not increasing the costs of production, but in Eastern Europe the increased input of capital hardly reduced labor input. Even after the liberation of part of the population, the volume of labor input often remained relatively stable, as only the previous underemployment of the workforce was reduced. Thus, the costs of increasing capital input were not offset by a reduction in labor costs. “Complex” mechanization proved insufficient: often some labor-intensive work had to be done manually, especially in storage and packaging. Mechanization of labor-intensive tasks such as potato, hay, and silage harvesting, animal husbandry and weed control was minimal. In the Soviet Union, even during the harvest, labor was brought in from other branches of the economy. In September, students were sent to rural areas to assist with the work. In many Eastern European countries, in addition to non-agricultural helpers, workers were sent to rural areas even during the predominantly mechanized grain harvest (Vadekin, 1978: 117).

The reduction in labor costs in Poland, Yugoslavia and the Soviet Union was significantly smaller than in Western countries. Given the large size of farms, labor costs remained high in Hungary, Czechoslovakia and the GDR (Wadekin, 1978: 106–109). In the GDR, there were virtually no employees laid off from work since 1976, and since 1980, the number of employees increased. While labor productivity reached approximately 62% of the West German level between 1966 and 1970, it fell to 53% between 1976 and 1980. Until 1974, GDR agriculture worked relatively well compared to West German agriculture. Grüneberg’s concept of industrial agriculture led to disaster: GDR

agriculture stagnated between 1974 and 1982, despite high investment. During this period, in most branches the GDR lost its leading role in Eastern Europe, while Hungary strengthened its position.

Since the 1970s, labor productivity in Western agriculture was as high or even higher than in industry, but in all socialist countries it was significantly below industry: in Poland and Romania agricultural labor productivity reached only 19% to 20% of that in industry, in the GDR — about 50%. An important reason was that much less capital was invested per worker in the East compared to the West (Wädekin, 1978: 118–120).

Ignoring the specifics of concentration in agriculture

The basis for understanding the shortcomings of the concept of "socialist agriculture" is Krebs's study (1983) on the origin and development of this concept by Marx, Engels and socialists, who argued that agriculture would be subject to the same concentration as industry. Krebs convincingly questions Marx's idea that the peasant petty commodity production with simple exchange of goods would inevitably lead to capitalism. He explains why the development of the peasant "simple" or "petty" commodity production differed from industry in terms of not producing the similar economies of scale: in agriculture, other forms of concentration can increase efficiency, since real "producers" are plants and animals, not labor. Intensification is possible without increasing the scale of production, and increasing the size has only a limited effect. Therefore, industrial principles of organization do not increase yields; moreover, internal transportation costs significantly increase with increasing farm size.

Response to the cost trap: reducing production costs

For the GDR, there is detailed data on costs and subsidies, published in the statistical yearbooks (Weber, 1989), which I will use to describe the situation in most socialist countries. Already in the mid-1970s, the reorganized "industrial agriculture" in the GDR fell into the cost trap. In response, planned norms for livestock farms were reduced, and reorganization slowed down. The SED decided to stop further concentration. After Grüneberg's death in 1981, it was decided to return to the territorial principle for employment. In the 1980s, the goal of harmonizing living conditions between rural and urban areas had to be abandoned. Since agricultural input prices were fixed in 1973, the need for government subsidies increased significantly — from 0.4 billion marks in 1974 to 6.9 billion marks in 1982.

Huge state subsidies were required to maintain agricultural production while preventing social unrest due to rising food prices.

For instance, the GDR subsidized consumer food prices to keep them low and stable, fearing that rising food prices would cause dangerous social unrest, as had happened in the Soviet Union in 1962 and several times in Poland. Although funding the subsidies had become virtually impossible, the SED leadership did not dare to initiate the necessary adjustments of consumer prices to rising production costs. However, other cost-cutting measures were taken, for instance, spending on hard currency on agricultural imports, such as concentrated feed and fuel, was reduced and placed under strict state control; in 1978, the industrial drying of straw and root crops was stopped to save on fuel imports.

In the GDR, state budget subsidies to agriculture increased significantly between 1970 and 1980: subsidies to maintain low and stable consumer prices — from 4.85 to 7.85 billion marks, subsidies to reduce prices on agricultural machinery — from zero to 6.11 billion marks. The number of permanently employed people (excluding forestry, veterinary services, and plant protection) decreased between 1970 and 1980 from 907,962 to 820,122, while wages and bonuses increased by 125% — 7.45 to 9.4 billion marks. At the same time, the net output of agriculture and forestry in the GDR increased by only 11% (from 14.95 to 16.62 billion marks), while fixed capital — from 37.5 to 61.7 billion marks (Homann, 1983).

To reduce the use of fuel and concentrated feed, the 1984 agricultural price reform aimed at forcing enterprises to more carefully account for the costs of inputs. The end of state subsidies for inputs significantly increased production costs for farms. However, this increase was more than offset by a significant increase in producer prices paid by the state. As a result, state subsidies to maintain low consumer prices increased significantly: in 1986, 30.9 billion marks were paid out (7.85 billion in 1980), while input subsidies decreased to 3.1 billion (6.11 in 1980). In total, in 1986 the GDR paid 34 billion marks in agricultural subsidies, more than double the amount of1980 (14 billion). In terms of net income, this meant that the GDR paid a per capita subsidy of 2,000 marks for food consumption, while the average annual income was 9,000 marks. After this price reform, virtually no agricultural enterprise in the GDR operated at a loss, whereas previously a significant share had failed to achieve their planned “profit”.

As in several other Eastern European countries, the goal of the 1982 food program in the Soviet Union was to eliminate the need for imports to save foreign currency. Therefore, the state made attempts to strengthen incentives for the use of local resources through price policy: subsidies for inputs were reduced; to mitigate high production losses, investments focused on such previously neglected downstream branches as transportation, storage and trade. To attract and retain highly skilled farm workers, their wages were brought in line with industrial wages, and they were provided with living conditions, housing and services comparable to those in cities. To meet the needs

of skilled labor, investments were increasingly directed toward social services and infrastructure improvements: agricultural specialists in rural areas were given priority access to personal vehicles, allowed to build individual houses and own private plots.

Return to cost-effective, private, small-scale agricultural production

The crisis of large socialist agricultural enterprises called into question their superiority over small-scale production. With the exception of Czechoslovakia, all other socialist states began to support private small-scale production: family labor allowed the state to save money, since it did not have to pay wages and for social security, as was the case with "socialist labor" on large farms.

Hungary began to respond to the cost trap as early as 1976. It abandoned its previous commitment to large socialist enterprises and began promoting private small-scale production, which marked the beginning of the successful integration of private production into cooperatives: large farms focused on highly mechanized arable crop production, while smallholdings specialized in labor-intensive vegetable and fruit growing, poultry and pig farming (Varga, 2021: 282). The state also supported small-scale production by non-agricultural population (Varga, 2021: 253–254). In the early 1980s, the integration of small-scale production into socialist agriculture in Hungary reached unprecedented proportions, and the state began to "capitalize on the capital reserves created by 'family labor'" (Swain, 1985: 4).

In the early 1980s, to reduce production costs for large enterprises the Hungarian government strengthened the integration of family labor into the service and industrial sectors by creating numerous new, less strictly regulated production units, for instance, "economic working partnerships", in which at least one participant was required to have a trade qualification. Such production units received subsidies for renting premises and equipment from state-owned enterprises and performing subcontracted work. A special form was the "entrepreneurial economic working partnerships" of employees or retirees of the parent enterprise. Most participants worked in partnerships in their spare time while holding full-time jobs in the socialist economy (Swain, 1985: 10–11).

Hungary also reduced state subsidies to farms. As a result, about a third of cooperative farms (44% of cultivated land) operated at a loss. Between 1982 and 1984, the state supported the liquidation of some cooperative farms and the formation of economic working groups or small specialized teams within these farms: these groups, under contract, took over production orders and operated independently. The state did not interfere and allowed cooperatives to decide how best to respond to the economic pressures caused by the end of state subsidies.

In Hungary, about 1.5–1.6 million families were engaged in agriculture after work (their primary job), i.e. about 40% of the total population of 4.5 million. About 40% of private agricultural production was provided by non-farm workers and employees[17]. Private production dominated labor-intensive, difficult-to-mechanize branches such as fruit and vegetable growing, winemaking, pig and goose fattening, and production of small animal meat such as rabbits and pigeons. It was strongly market-oriented, and collective and state farms offered attractive conditions to all private producers and acted as trading enterprises providing necessary inputs and means of production, offering such services as plowing and marketing. In 1981, state and collective farms employed about 3,000 specialists just to advise small producers. Abound 540,000 private producers participated in this integrated form of production. Only in Hungary, consumer prices were the same for all consumers. Thus, unlike in the Soviet Union, trade in free markets lost its appeal for private producers.

The Soviet Union focused on mobilizing local production resources to replace imports and changed its approach to private production. In 1977, restrictions on the use of plots (for example, for fattening animals unprofitable for large enterprises) were gradually lifted. From 1981, the use of additional pastures for forage production was permitted, and in 1986, the upper limits for animal husbandry were abolished. However, small plots failed to provide the expected additional food due to the lack of machinery and unattractive prices paid by the state.

From 1982, the Soviet Union also attempted to increase motivation for work through incentives. Thus, "contract brigades" (*zveno*) became widespread: they were to accept orders for producing specialized products but could organize their work independently; farms were to provide the necessary means of production; payment was to be made for the final product, calculated, however, according to official norms. In Soviet conditions, this attempt proved ineffective: enterprises often failed to fulfill their obligations, necessary resources were not delivered on time, and staff turnover in brigades was high; the focus on state norms rather than on the final product complicated income calculations.

After the abolition of the upper limits on the size of private plots in 1977, the GDR also began to support private agricultural production by the non-farming population through contracts with the VKSK (Association of Gardeners, Settlers, and Small Animal Breeders), founded in 1959 and with about 1.5 million members in 1980. The state paid members prices for fruits, vegetables, and small animals 10%

17. About 22,000 small private farms remained, mostly working on poor soils. Private plots of collective farmers averaged 0.57 hectares, with private farms accounting for 650,000 hectares of cultivated land. In addition, there were 790,000 small plots allocated to non-agricultural workers and employees.

higher than those paid to collective farms. The produce purchased by the state was sold in state stores at highly subsidized state prices, below the prices paid to private producers. The VKSK supplied about one third of the fruit, 100% of rabbits for meat and honey, two thirds of the geese, 25% of vegetables, and 40% of sheep wool. The VKSK's share of the supply of produce for state marketing showed a strong upward trend. In the GDR, as in other socialist countries, it was common practice to purchase highly subsidized grain to feed private animals, since concentrated feed was very expensive and in short supply.

The fate of socialist agriculture after the end of socialist regimes: what this fate tells us about its strengths and weaknesses

To judge the success or failure of socialist agriculture, it is helpful to consider the situation after the end of socialist regimes. In 1985, Swain argued (based on the "socialist principles") that Hungarian collective farms were a "socialist success" in the economic sense but a "socialist failure" in the social-political sense due to their failure to create a working environment with inherent socialist characteristics (1985: 9–11, 181). I believe that this assessment needs to be revised after the end of socialist regimes, which showed that socialist agriculture was an economic failure — it did not ensure cost-effective production, wasted material and human resources, did not provide working conditions and social protection satisfactory for workers on socialist farms in most countries, with the exception of Romania and Albania (Swain, 1999; Merle. 2017).

Despite the serious economic problems caused by the cost trap, in the early 1980s, in Hungary, Czechoslovakia, Bulgaria, the GDR and the Soviet Union most collective farmers were satisfied with working conditions, which were virtually similar to those of industrial workers; non-agricultural activities in the second economy were permitted everywhere; collective farmers received reasonably good payment for their sometimes rather poor work (in most cases, payment did not depend on work results). Although the harmonization of rural and urban life was not achieved, the balance of socialist industrial agriculture with respect to social goals was not that poor: general well-being in rural areas improved due to the significant state investment in agriculture and private investment in housing. Previous infrastructural deficiencies related to culture and living conditions were minimized: collective farmers enjoyed regular working hours, holidays and free weekends (Swain, 1999: 199–201; Bauerkämper, 2002; Bauerkämper, 2014: 34).

After the end of socialist regimes, all countries started reconstruction, following two imperatives: to correct through property restitution the injustices committed by collectivization against landowners; to transfer farms — corporate or private — to agricultural enterprises capable of

operating in the competitive market economy. Both external and internal factors played a role: external factors included political discrimination against former "socialist" enterprises and the need to improve efficiency by reducing production costs, which required to significantly reduce the workforce and to replace inefficient machinery and equipment with highly efficient Western models. Internal factors included the satisfaction of collective farmers with living and working conditions and their trust in management to cope with the challenges of enterprise transformation. These factors determined the outcome of meetings at which members and — then mostly external — property owners voted on the economic concept, management for the future enterprise, and the opening balance sheet, distributing the enterprise's financial and material assets. These issues required the approval of both current members and (separately) property owners — groups with very different interests.

Internal factors allow for the clearest assessment of success or failure. Those "socialist" farms that did not provide their members with a comfortable life, social security and acceptable working conditions immediately disappeared, which happened extensively to collective farms in Romania and Albania. In both countries, Stalin's discrimination against peasants never ended, collective farmers' incomes remained meager, and the division of labor into units was never abolished. Member voting led to the liquidation of collective farms — in Albania completely, in Romania to a large extent (Swain, 1999: 1199–1219). In all other countries, collective farmers generally consented to management proposals (Swain, 1999: 1199–1201). The effect of external factors was more complex: each country developed its own approach to legislation on restitution, bankruptcy and restructuring of large farms. Moreover, in Germany, the regulation of "old debts"[18] played a decisive role (Merl, 2017).

To compensate for the historical injustices caused by expropriations, the assets (of collective farms) had to be returned to their original owners. Only in Poland and Yugoslavia this was unnecessary, as both stopped collectivization[19]. Bulgaria and Romania insisted on the return of land within its historical borders, which caused particular problems.

Most of the new governments (with the exception of Bulgaria) exerted strong political pressure to abolish collective farms and to restore peasant agriculture to its pre-collectivization form but did not take into account the economic changes of recent decades: the

18. In the GDR, the costs of investing in local infrastructure and social institutions were recorded as farm debts, although farms never managed the funds. Kohl government demanded the repayment of these "old debts". It took a decade to finally resolve this issue and free enterprises from the obligation to repay these debts.

19. Poland suffered from the lack of land consolidation, elsewhere reached by collectivization (Swain, 1999: 1201).

prerequisites for successful family farming in most now-industrialized countries were completely different than those in the 1950s due to rapid advances in agricultural science (for example, the "green revolution") and knowledge. Even private farmers needed thorough training and skills to cope with the new agricultural requirements: every farm used efficient machinery and equipment, was required to invest in fertilizers and high-quality livestock, sought advice from cooperatives or private consulting to assess investment risks. Furthermore, concentration increased the average farm size at least threefold; many farmers retired without successors, often retaining their property but leasing land to other farmers.

The restituted properties were typically small and often fragmented, thus, no longer providing the necessary conditions for successful agricultural production. In addition, most of former landowners or rather their heirs had long since abandoned agriculture, and many had never worked in it. Therefore, only a few of those who reclaimed their land were able or willing to restart private farming[20]. Only members of the former collective farm with a special "peasant mentality", who enjoyed working with animals and in the fields, regardless of the length of the workday, could cope with inevitable risks. Thus, only a few of those who reclaimed their land decided to engage in (individual) farming, mainly specialists or management members with the necessary qualifications and connections to acquire equipment. Ordinary members rarely decided to take such a risk if they had other alternatives: most preferred to lease out their land, and new tenants often reorganized large enterprises, dealing with many lease contracts as they had little land of their own. In Hungary, they were not allowed to buy land (Swain, 1999: 1205–1206).

On the other hand, large enterprises, if managed by qualified specialists and operating with high-quality equipment, had a good chance of coping with market conditions. Many of them survived re-registration (usually as "true" cooperatives and LLCs, rarely as holdings), which proves the crucial weaknesses of socialist regimes — not so much the size of the enterprise as the fact that directors and chairmen were under orders from above and could not independently select resources and equipment necessary for efficient production. Now many of them made good decisions about their own risks, prioritized cost-effective production, selected highly efficient equipment and livestock, and reduced the workforce to those truly needed, retaining primarily skilled workers[21]. The fact that most of

20. Many new private farms in the GDR were founded by people from West Germany or abroad (often the Netherlands); many started family farming with several hundreds of hectares.

21. The success of new farms depended primarily on increased efficiency: in all former socialist countries, the plant and animal productivity levels achieved under socialist regimes were soon surpassed.

these managers came from former state or collective farms suggests that they often had necessary qualifications and were able to win trust of previous members.

In the Czech Republic, restitution was heavily politicized and intended to return the lost property in its entirety and current form. However, restitution was not a mass phenomenon, as the land remained privately owned: it affected only such expropriated as *kulaks* in the early 1950s and owners of estates expropriated in 1948; other land could be transferred to them (Swain, 1999: 1201). In 1967, with the creation of "cooperative property", restitution in Hungary became a mass phenomenon. By the late 1980s, only 35% of the land remained privately owned. Thus, many had to be compensated for their loss, and there was considerable concern about the viability of future structures. Therefore, it was decided not to return the land but to use restitution vouchers, which allowed land to be purchased at auction, not limited to the location where the land had previously been owned. Everyone was to receive something, but no one could reclaim "their" property. Compensation could be provided in physical assets or financial securities but not in cash.

In Czechoslovakia, the management of large enterprises was required to submit a plan for liquidation or establishment of a successor enterprise. Its assets and net profit were to be distributed as follows: 50% for the land, 30% for the contributed assets, and 20% for the membership period. A claim for the return of assets had to be submitted within seven years, which led to uncertainty and serious problems for the large successor enterprise: during this period, it would be in an uncertain position regarding its assets. Moreover, there was a risk that those dissatisfied with the decision could appeal to the court, leaving the final decision open for several years (Swain, 1999: 1203–1204; Merl, 2017). On the contrary, in Hungary restitution was limited to 1992: even those who had not brought in land could claim a plot as private property, and the distribution was to be at least 40%, depending on the length of membership.

1992 became a "window of opportunity" (Swain) for (re)establishing family farming in most Eastern European countries. Those who wanted to become farmers were given favorable start-up support; however, after 1994, it was reduced or eliminated in many countries, because it became too expensive and many farmers had not begun producing for the market. "Socialist" small farming, as it existed in Hungary, rarely coped with the new market competition: most private plots were soon turned into vegetable gardens, losing their significance for providing food for the population and producing for the market. Only in a few cases did landowners successfully expand their private plots into real family farms producing for the market.

Most managers saw their future in large enterprises rather than in private farming, especially in the GDR and the Czech Republic, since they possessed such important advantages as commercial experience,

familiarity with banking, business partners, large sums of money, and networks they could rely on, i.e., "social capital" that others lacked (Swain, 1999: 1208–1209; Merl, 2017). Success depended largely on managers' skills: to restart private farming, personal contacts with farm managers provided access to capital and technology. Farm managers had a decisive advantage in information they did not share with others, for instance, intimidating members, threatening pension cuts. The more successful the managers were, the better their farms had been previously managed: such managers enjoyed authority and prestige among the members, whose social-demographic profile also played a role: they were mainly older people and women, who were more inclined to follow the managers' arguments (Swain, 1999: 1207–1208). A complete reorganization often took about ten years.

Only in Hungary the dissolution of collective farms was more likely, since the bankruptcy legislation came into force directly. In the Czech Republic and especially in Slovakia, many large farms were transformed into new legal form, paradoxically, due to the lack of bankruptcy legislation. In 1993–1994, the number of corporate farms increased, as outsiders were generally reluctant to engage in private farming. Many (former) members increased the size of their private plots. In 1994, cooperatives and corporate associations owned almost 74% of the land; of the 23.2% privately owned, more than 80% were less than 10 hectares, and only 2% — more than 100 hectares (including "residual holdings" returned to heirs). In Slovakia, most votes in large farms favored this very form: in 1994, such farms owned 70% of the land, while corporate associations — almost 5%; individual farms owned 5.2% of the land, 76% of which were less than 10 hectares and about 2% — more than 100 hectares (Swain, 1999: 1210–1211).

In Hungary, members also initially decided to keep their cooperative farms, but political and economic pressures related to bankruptcy laws changed the situation: more than a quarter of large farms were declared bankrupt, which became the catalyst for their liquidation. However, their assets were often preserved, and management used them for establishing large private farms. Among those members who had already expanded their holdings, only a few expanded production: in 1994, cooperatives owned 31.7% of the land, while private cooperatives — 35.9%; 32.4% of the land were managed by individual farms, most of which owned less than 10 hectares (Swain, 1999: 1213–1215).

The specificity of the German case was determined by the speed of transformation during German reunification and by the fact that the new countries immediately became part of the European Union with fixed market rules and predictable prices, which was not the case in all other countries that underwent transformation, especially in Russia. Most of the German former collective farms drastically changed their concept and survived; however, it took about ten years to complete this transformation. During this time, especially in the first years, the share of landownership changed significantly:

corporate enterprises reduced their share from 90% to 51%, while the share of individual farms (including partnerships) increased from 10% to 49%. Only a third of individual farms were created "voluntarily", while two-thirds were a result of the liquidation of collective farms without establishing a successor, which left landowners no choice but to begin cultivating land (Merl, 2017: 136). Most of the newly established private farms were significantly larger than those in West Germany, and over the decade, their average size increased further — from 120 to 160 hectares. Partnerships within private farms often owned several hundred hectares (Merl, 2017: 136–137).

Although the Kohl government exerted pressure to return farms to private ownership, this had little effect. The decisive factor in the survival of most large enterprises was the time pressure imposed by the German government: the Agricultural Adaptation Act (Landw irtschaftsanpassungsgesetz) gave the management (APC) and the population only a few months to decide on the opening of balance sheet, asset privatization, and the future organizational form. If a consensus vote among members and (separately considered) those with the right to assets had not been reached by the end of 1991, the large farm was liquidated, which meant the loss of control over the further process by management and members (Merl, 2017: 131).

In most cases, votes were in favor of turning the enterprise into a new legal form ("true" cooperative, LLC). "Old debts" played a decisive role in these votes, creating uncertainty about the best option for individuals. In the event of bankruptcy, old debts were deducted from the value of assets.

Managers used their "social capital" to manipulate vote results and give the successor enterprise a chance of survival: only they possessed real information about the farm and the value of assets. In the opening balance sheet, "reserves" were often manipulated to provide capital for the successor enterprise (Merl, 2017: 132–133). Managers who enjoyed the trust of the members often achieved unanimous approval of the proposed concept and the initial balance sheet. Only in about 20% of cases, there was no such proposal or vote, and farms were liquidated through bankruptcy. Most of the transformed large enterprises survived in the long term and adapted to the market competition. Freed from government control and interference and given access to high-quality equipment, many proved their competitiveness and successfully took advantage of tax breaks and subsidies (Merl, 2017: 131–132).

Conclusion

Due to the myth of agricultural mechanization under Stalin, socialist countries started agricultural modernization only in the 1970s, two decades later than in the West. Consolidation of collective farms required what Stalin had refused to give — huge state investments,

payment for work and efficient machinery for large-scale farming. However, industrialization of agriculture followed the path of collectivization — "on the cheap", providing machinery and equipment below Western standards. Moreover, huge state investment was spent on changes in the size of production units regardless of economic necessity. Although since the 1970s, heads of large farms in general were highly qualified, the command economy (the party kept control over agriculture and set prices) did not allow them to use their competencies. In the 1980s, the fight against the cost trap of socialist agriculture paradoxically returned the state support to the cost efficient small private production which Stalin and Khrushchev had tried to liquidate. In the end, most agricultural workers were satisfied with working conditions and payment on large farms, but enterprises suffered from extreme inefficiency. Only after the fall of socialist regimes, did they manage to prove their competitiveness in the market conditions due to getting access to high-quality inputs.

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Коллективизация и социалистическое сельское хозяйство (1917–1992): пересмотр советского и восточно-европейского опыта.

Часть 3: стабилизация колхозов, индустриализация и крах социалистического сельского хозяйства (1960–1992)

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Аннотация. Для переоценки коллективизации и социалистической аграрной политики необходимо рассмотреть весь соответствующий исторический период, выделяя в нем следующие этапы, принципиально различающиеся политическими подходами: (1) коллективизация при Сталине, основанная на идеях классовой борьбы и подавления крестьян в целях изъятия капитала из сельского хозяйства для нужд промышленности; (2) коллективизация при Хрущеве, который стремился ее завершить, несмотря на возникшие в ней сомнения (в 1953 году в Советском Союзе, в 1957 году — в ГДР и Венгрии); (3) усилия по стабилизации экономически слабых колхозов в 1960-е годы — после завершения коллективизации и смещения Хрущева; (4) окончательный разворот к модернизации сельского хозяйства в надежде на экономию за счет масштаба и применения разных вариантов индустриализации в 1970-е годы; (5) провал этих вариантов, что стало причиной ловушки невозвратных затрат и вынужденного возрождения мелких частных форм хозяйствования в 1980-е годы. В первых двух частях статьи обозначены особенности коллективизации в Советском Союзе и Восточной Европе при Сталине и Хрущеве, третья часть посвящена попыткам стабилизации колхозов и все же начавшейся модернизации в интересах создания промышленного сельского хозяйства. Сталинский миф об аграрной механизации привел к тому, что модернизация в социалистических странах началась только в 1970-е годы, на два десятилетия позже, чем на Западе, но ее ход определялся тем же принципом, что и ранее коллективизации — «по дешевке» (качество сельскохозяйственной техники и оборудования были ниже западных стандартов). Более того, по приказу сверху огромные инвестиции тратились впустую — на изменение размеров производственных единиц, в чем не было экономической необходимости. Хотя с 1970-х годов большинство руководителей крупных хозяйств были высококвалифицированными специалистами, плановая экономика не позволяла им реализовывать свои управленческие компетенции. Правящие партии сохраняли контроль над сельским хозяйством и устанавливали цены, но в 1980-е годы, борясь с ловушкой невозвратных затрат, они же вновь стали поддерживать экономически эффективное мелкое сельскохозяйственное производство, которое пытались ликвидировать Сталин и Хрущев. Хотя основная часть рабочей силы была удовлетворена условиями труда и оплатой в крупных хозяйствах, аграрные предприятия оставались крайне экономически неэффективным и только после падения социалистических режимов смогли доказать свою рыночную конкурентоспособность, получив доступ к высококачественным ресурсам.

Ключевые слова: колхозы, социалистическое сельское хозяйство, индустриализация сельского хозяйства, модернизация, Советский Союз, Восточная Европа, Кадар, Брежнев, Ульбрихт, Грюнеберг, механизация, частные земельные участки, экономия за счет масштаба