Past in the Future vs. Future Without Past: Challenges of the Economic Education

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Abstract. The article is dedicated to the analysis of formation of the technical and economic paradigm of the industrial revolution in Russia, its influence on economic education and on creation of planned (economic) educational institutions. The theory and practice of planning is considered through the prism of changes in economic science and education. At the same time, the authors check an opportunity of application of the recurrent model of Large wave by C. Pérez and create its soviet case. The authors drew conclusions about continuity and innovations in deployment of the technical and economic paradigm of industrialization in Russia, phases of its distribution in realities of the Soviet Russia of the 1920–1930s.

Keywords: Conception of "large waves" · Recurrent model · Social project · Economic discussions of the 1920–1930s · Economic education · Planning institutions

1 Introduction

The society, which is presented by different social groups and institutes, thinks on the future, builds its prospects and forms new images of "bright future" at each new stage of historical development. It becomes particularly evident in conditions of large social and economic "shifts". Technological revolutions are among them. As a rule, science carries out functions of forecasting and scientific justification of the future, and the education system performs functions of scaling and distribution of new knowledge. State and political support and financial provision of studies are necessary conditions for these processes. Technological, knowledge and educational spheres with appropriate support determine and create new future [3]. The authors consider these processes through the prism of the concept of Carlota Pérez on the basis of materials of the Russian economic history of the 1890–1930s.

2 Methods

The key question of authors' interests is how the technical and economic paradigm of the second technological revolution in Russia was generated and how it became a new ideal, which was professed by millions of Soviet people.

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The purpose of this research consists in determination of forms of interrelations of economic science and higher business education and conceptual features of the Soviet technical and economic paradigm of the 1920–1930s. We consider three main aspects.

1. Establishment of the Soviet economic science of the 1920–1930s in the context of the technical and economic paradigm of industrialization (or the second technological revolution).
2. Modernization of economic education as a respond to challenges of the industrial era and its technical and economic paradigm.
3. The Soviet version of this scientific concept as an option of the recurrent model of C. Pérez.

The genesis of the technological revolution is connected with the moment of formation of its scientific paradigm [13]. C. Pérez notes that it goes through two stages: genesis (20–30 years) (somewhere in the middle there comes the crucial point when resistance of the old idea is broken), and the second period - deployment of a new paradigm. Each stage in its turn has two "phases, which differ in the nature of assimilatory process": introduction – aggression – a turning point between them – synergy – maturity [12]. This process influences the micro- and macrolevel of the economy, affects the whole system of social and political regulation. The economy, technologies, and institutions are the driving forces of wavy development of the technological revolution [12]. This complex multilevel system is poorly formalized. C. Pérez presented it as a recurrent model, a returning sequence. We consider her working model check on the basis of Russian historical material (the imperial and Soviet period) in relation to the second technological revolution.

3 Discussion

The main issue of interest to the authors of the article is a place of higher business education in conditions of birth of a new technological revolution. The way in which a new technical and economic paradigm becomes common property. These processes are investigated on the basis of the Russian material of the second Large technological wave.

The second technological revolution in Russia, which started in the 1890s with S. Yu. Witte's program, moved to another phase only in two and a half decades, that is in the middle of the Large wave. Riding the crest of this Large wave, Russia was in conditions of the First World War (1914–1918), and the Great Russian Revolution (1917–1922). During this decade (1914–1924) economic, technological and institutional spheres "were developed" in the socialist plane. Economic changes were connected with strengthening of regulatory functions of the state, replacement of market orientation of the economy by planned management of the national economy. These processes took place against the background of the accruing industrial crisis [6]. Interaction of technologies, science and education determines success of the technological revolution [13]. At the same time, universities are the place of interaction of social capital and public benefit [7]. While studying the origins of the industrial theory, we rely on works, written by its contemporaries, generally in the 1890–1930s.

4 Results

4.1 Establishment of the Technical and Economic Paradigm of Industrialization in the 1920–1930s. Discussion About Economic Management

The main elements of the new economic concept stretched back to the 19th century. There can be conditionally allocated two tendencies: social and economic, technical and economic. Let us cursorily designate the key theses: the future lies in the machine industry, in concentration of the industrial capital, in the financial capital and in financial and industrial groups. The state regulation objectively increases in such conditions and gets the forms of control or coordination of certain parties of reproduction. The capitalist competition extends beyond the national boundaries and reaches the international level. The new era was called the "imperialism" of "the financial capital", but the leading place in the economy was given to the industry and industrial technologies.

The industrial future of the Soviet industry was accepted without any reservations after the Great Russian revolution of 1917–1922. The Lenin's thesis that "large-scale industry can be the only material basis for socialism" [11] became a guide for action for the Power and the Party in issues of planned development of the heavy industry. Lenin considered development of natural productive forces, electrification, scientific organization of labor and management as the most important objectives of the economic policy. The planned economy seemed to Lenin as a "uniform factory". At the same time all the functions of economic management concentrated in the government apparatus.

The main topic of the Soviet scientific economic thought of the 1920s was management methods. The most argumentative issues were about regulators of the socialist economy, the plan-market ratio, types of advance planning, economic laws, which should be taken into account (general economic, peculiar to both capitalism and socialism, or specifically socialist) [10].

The most important task of the economic practice – "how actually elimination of spontaneous market regulation will happen and how its place will be taken by the socialist plan" was solved differently [14]. And whether the political economy of socialism may exist? Evgenii Preobrazhenskiy (1886–1937) believed that production in the socialist economy is managed both by market (the value law) and planned (the law of primary accumulation) regulators. On the contrary, Aleksander Bogdanov (Malinovskii) (1873–1928) claimed that the regulator of the Soviet economy is the value law, which is modified in the law of proportional labor costs.

By the middle of the 1920s, there appeared two methodological approaches in understanding of the national economic planning in the USSR – "genetic" and "teleologic", which differed in understanding of the nature of spontaneity (genetic) or orientation (teleologic) of public processes. Both notions were introduced by one of the key workers of the State Planning Committee of the USSR - Vladimir Bazarov-Rudnev (1874–1939). In his understanding, the "genetic" approach is predictive and is based on extrapolation of the existing trends of economic development. As for the "teleologic" approach, it is directive and it leans on the priority of target prescriptions, planned tasks

[2]. In other words, whether the future is possible without the past, or it should rely on achievements of the past?

The theorists of the genetic approach – Nikolai Kondratiev (1892–1938), Vladimir Bazarov (1874–1939), Vladimir Groman (1874–1940) – defended the market mechanism of economic management, which is based on careful studying of spontaneous processes, account of conjuncture, analysis of the past experience and effectiveness of extrapolation of conclusions for the future. The followers of the teleologic approach – Gleb Krzhizhanovsky (1872–1959), Stanislav Strumilin (1877–1974), Nikolai Kowalewski (1892–1958) – supported management and reconstruction of the national production by means of target transformations. In the early thirties these scientific discussions were curtailed.

The special State commission GOELRO (The state electrification of Russia) which was created in February, 1920, determined the state industrial policy. By December, 1920 it elaborated the development plan for the power industry (GOELRO plan), and in February, 1921 it acquired the status of the State general planned commission for development of a unified nation-wide plan (Gosplan). The long-term development plan of the power industry for 10–15 years turned into a predictive tool for planning of the whole national economy of the country. By the end of the 1920s, the technology of economic planning became an enforceable directive.

K. Marx wrote about capitalism as the "steam era", Lenin pushed the idea of socialism as the "electricity era" [8]. The Lenin's conception of electrification of the country as a basis of reorganization of the whole industry relied on views of the professor of the Berlin University, the economist of the Weimar Republic, Karl Ballod (1864–1931) and the director of the Moscow higher technical college, the professor of heating engineering, the author of the project on reform in professional education, Vasiliy Grinevetsky (1871–1919). The Ballod's ideas, which were stated in his book "The State of the Future" (1898, 1919) formed the basis for "the scientific plan of the socialist reorganization of the whole national economy of Germany" and became a starting point for development of a unified economic plan of the GOELRO commission [16]. V. Grinevetsky described the nearest future of the Russian economy after the First World War in the book "Postwar Prospects of the Russian Industry" (1919). His statistical calculations, data and conclusions set the structure and the logic of "The plan for electrification of the RSFSR" [15].

It is important to note that both scientists considered economic transformations in a broad context of social changes. Accordingly, K. Ballod considered general distribution of the rationalization system of labor actions and business management (scientific management), which were developed by the American engineer Frederick W. Taylor, as means of achievement of high labor productivity. V. Grinevetsky was the first in Russia, who connected the prospects of the industry with solution of social problems. In his book he disproved the idea of technocrats that "mechanization of production destroys the need for skilled labor, it turns a worker into a supplement to an automatic machine". V. Grinevetsky believed that initially it is necessary to increase the cultural and professional level of everyone, who is engaged in production [15]. The same principles formed the basis for practice of "the cultural revolution" in the USSR.

Unification of equipment, economy and spiritual culture into one system received completed embodiment in works of Bogdanov. He saw the total "split of a man" in the human history - divergence of the highest "managerial" and the lowest "performing" labor forms, entrenched in technical and economic relations. Bogdanov developed the program of "a universal organizational science", tectology. This universal theory of organization of human knowledge was based on "coherent organizational thinking", "all-social regularity" and "comprehensive mobility of labor". It was designed to provide "integrated education" and to erase borders between knowledge of "managers" and "performers" [4]. Rejected by Lenin, the Bogdanov's theory anticipated a number of structural changes in the society of the 20th century, but influenced the Lenin's idea of "the scientific organization of labor and management" (NOT).

Consequently, the ideas of industrialization received scientific justification in works starting from the 1880–1890s. Approximately in 20–30 years they took the form of scientific concepts with accurate identification of industrialization tendencies, forms of its realization (planning, production rationalization) and social orientation. The concept was formed in conditions of serious scientific discussions. We consider social orientation of industrial transformations on the example of higher education.

4.2 Modernization of Higher Economic Education as a Respond to Challenges of the Second Technical and Economic Paradigm

Reorganization of higher business education in the USSR in the 1920–1930s was carried out in the framework of the second technological revolution concurrently with change of state, political and economic targets. The authors distinguish three transformation stages of the system of business higher education institutions of the Soviet country: 1917–1921, 1921–1929, 1930–1937.

At the first stage, the basis for the developing system was the former prerevolutionary structure of economic educational institutions. The Soviet power kept all the commercial institutes, but submitted them to nationalization and changed their names. For example, the Petrograd Higher commercial courses of M.V. Pobedinsky and similar courses of E.V. Tarle were renamed into the Petrograd institute of national economy named for F. Engels. The Moscow commercial institute was changed to the Moscow institute of national economy of K. Marx, the Higher cooperative school attached to the Moscow peoples' university in the name of A.L. Shanyavsky became the All-Russian cooperative institute, the Kiev commercial institute – the Kiev institute of national economy, the Kharkiv commercial institute – the Kharkiv institute of national economy. New names of economic higher education institutions reflected the desirable prospect – training of specialists for the national economy in general.

At the second stage, in the period of the New Economic Policy (1921–1927), narrowly specialized higher education institutions - financial and economic, industrial and economic, national economic accounting, etc. were opened in various regions of the country. Their features were: randomness of creation, brevity of existence, unreasoned supply of teaching staff and material resources, which were often not available. At the same time, there was no clear understanding of what scientific ideas should be the basis for training.

At the third stage, search for the most appropriate model of higher economic school for the Soviet society was generally finished. New economic higher education institutions were created on the basis of economic faculties of universities. For example, in 1931 the Voronezh planned-economy institute was created on the basis of the planned-economy faculty of the Voronezh State University. However, in 1932 it was reorganized into the Voronezh institute of national economic accounting [9]. At the same time, the departmental affiliation of higher education institutions was unified, and disciplines on planning of the national economy and Marxism were introduced into curricula. The ideological control over pedagogical activity was tightened.

Over these years, the principles of massification, proletarization and free of charge education became firmly established at the Soviet higher school, including economic ones [1, 5]. In such a way, the Bolsheviks implemented political slogans about available and classless education. Receiving higher education became possible for all segments of the population (especially in the period of cancellation of educational qualification), but mostly the preference was given to representatives of the working class – workers and peasants.

In summary, the ideology of economic education, which was implemented in the Soviet Union in the 1920–1930s, was rooted in origins of the second technological revolution – the period of market industrialization in Russia (industrialization of S.Yu. Witte) in the 1890–1900s. At that time, economic qualification was an obligatory part of training experts of technical specialties (engineers), which were highly demanded by the second technological revolution. The new Bolshevik leadership of the country continued this streak, believing that experts, who plan development of the national economy, should also have good understanding of the principles of changes in physical processes. However, in the second half of the 1930s the most part of technical departments was eliminated in economic higher education institutions, because their significant amount did not correspond to the objectives of planned education. The authors believe that the essential role in reduction in the share of technical disciplines was played by inclusion of the disciplines connected with studying Marxism and the political economy of socialism in training programs.

4.3 The Soviet Version of the Recurrent Model of C. Pérez

We schematically displayed the changes in management technology, economic science and the system of economic education, which took place over the life cycle of two generations of Russians, in Table 1. As well as in the model of C. Pérez, the duration of formation of the paradigm in Russia was approximately half a century. In the Russian version, the tipping point from one phase to another can be dated back to the Great Russian revolution (1917–1922) and political changes, or to 1927–1928 when the practice of five-year planning for the whole national economy was approved in the USSR. In contrast to the recurrent model of C. Pérez, the feature of the Soviet version consists in the fact that it is almost impossible to divide the periods of aggression and synergy at the deployment stage of the industrial paradigm in the Soviet Russia. Disputes and the scale of economic discussions in the late twenties were so deep that they require special study. In reality many participants of these discussions were repressed.

Table 1. The recurrent model of the evolution of technical and economic paradigm of C. Pérez: the Soviet version of the industrial scientific paradigm

	The deployment period of first industrial theories	The formation period of the industrial paradigm		The turning point	The deployment period the industrial paradigm		The formation period of the postindustrial paradigm
phase	maturity	introduction	agression		agression - synergy	maturity	introduction
years		1890-1900s	1910s	1917-1920	1920-1930s	1940-1950s	1960-1980s
Management technologies		Intracompany management of factory machine production. Private and state sector in the industry. Market regulation of the economy	Intracompany , sectoral management (military-industrial complex), inter-sectoral state coordination (special meetings) of the First World War	Nationalization of the industry. GOELRO plan	Five-year planning for the whole national economy (from 1927/28) Attempts at implementation of the NOT system at certain enterprises	Total planning as a public project of production management, Social sphere and science	Five-year planning for the national economy
Economic science		Concepts of the national economy in the S.Yu. Witte's program	Concepts of Ballod and Grinevetsky in the Lenin's program		Economic scientific discussions (till 1930-1932). Repressions and "purge" of scientific personnel	The Soviet economic science, justification for directive planning	Trashing of the industrial model, the beginning of economic discussions 1960s
Economic education		Private commercial and technical education	Private commercial and technical education	Nationalization of higher education institutions	Strengthening of social and political orientation in training of economists	Separate training of economic and technical experts.	

5 Conclusion

Russian industrialization became the time of ideological, state and political, technical and economic reconsideration. At the same time there was the change of public ideals. The Soviet industrial policy was continuation of the idea about industrialization, which appeared at the end of the 19th century. Its features were made in the form of the concept of socialist industrialization in the course of scientific discussions, which were artificially interrupted in the first half of the 1930s. It did not give a chance "to couch seeds" of the past era (scientific and technical achievements of the 1900–1910s) in the Soviet future. Prevention of a possibility of their studying by the Soviet economic

science had long-term effect and created a thinking "track" (scientific and practical). This "track" was at the beginning of the new Large technological wave in the second half of the 20th century.

The attempts of the Soviet leadership to build industrial economy without reliance on the past were successful regarding the social project. The paradigm of the socialist industrialization was actively implemented and expanded through the system of higher business education. This project can be considered successful as there was industrial growth in the country in the 1930s, despite considerable social costs.

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References

1. Act of Sovnarkom: Act of Sovnarkom and Central Committee of the Communist Party "About work of higher educational institutions and about the management of the higher school" 23.06.1936. In: The Higher School: Main Resolutions, Orders and Instructions. Sov. Nauka., Moscow (1957). (in Russian)
2. Bazarov, V.A.: To the issue of an economic plan. Econ. Surv. **6**, 10–15 (1924). (in Russian)
3. Bodrunov, S.D.: The Future. New Industrial Society: Reboot. Cultural Revolution, Moscow (2016). (in Russian)
4. Bogdanov, A.A.: General Labor Organization (Tectology). Knigoizdatel'stvo pisatelej v Moskve, Moscow (1917). (in Russian)
5. Decree of Sovnarkom: Decree of Sovnarkom "About some changes in composition and structure of the state educational and higher educational institutions of the Russian Republic" 01.10.1918. In: Code of Justice and Government Decrees of 1917–1918, pp. 999–1000. Administrative Office of Sovnarkom of the USSR, Moscow (1942). (in Russian)
6. Gruzinov, A.S.: Economic collapse in 1917: the consequences of a long war or the result of the revolution? In: Economic History. Annals 2016/17, pp. 201–240. Institute of Russian History, Moscow (2017). (in Russian)
7. Fuller, S.: What makes universities unique? Updating the ideal for an entrepreneurial age. Educ. Stud. Moscow **2**, 50–76 (2005). (in Russian)
8. Gvozdeckij, V.L.: GOELRO plan. Myths and reality. Sci. Life **5**, 102–109 (2001). (in Russian)
9. Karpachev, M.D.: Forgotten higher education institutions: from history of the Voronezh higher school of the 1930s. In: Proceedings of Voronezh State University, Series: Problems of Higher Education, vol. 1, pp. 208–213 (2012). (in Russian)
10. Koritskiy, E.B. (ed.): What a Plan Would Be: Discussions of the 20s: Articles and Modern Comment. Lenizdat., Leningrad (1989). (in Russian)
11. Lenin, V.I.: Report theses on tactics of RCP. In: Lenin, V.I. (ed.) Complete Set of Works, 5th edn, vol. 44, pp. 3–12. Gosudarstvennoe izdatel'stvo politicheskoj literatury, Moscow (1921). (in Russian)

12. Pérez, C.: Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Golden Ages. Delo, Moscow (2011). (in Russian)
13. Pérez, C.: Technological revolutions and techno-economic paradigms. Camb. J. Econ. **34**(1), 185–202 (2009)
14. Preobrazhenskiy, E.A.: New Economics (Theory and Practice): 1922–1928 (Edited by Gorinov, M.M., Tsakunov, S.V.) Izdatel'stvo Glavarhiva Moskvy, Moscow (2008). (in Russian)
15. Shcherbakova, O.M.: VI Grinevetsky about the ways of developing the country in 1918 (on the occasion of the centenary of the book «Post-War Perspectives of Russian Industry»). Bull. Moscow Region State Univ. Ser. Hist. Polit. Sci. **2**, 115–125 (2018). (in Russian)
16. Sneps-Sneppe, M.: On the tasks of the digital economy, looking back at the works of Professor Karl Ballod. Int. J. Open Inf. Technol. **6**(4), 80–91 (2018). (in Russian)