Making Socialism Work: The Shchekino Method and the Drive to Modernize Soviet Industry

by

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Dissertation submitted in partial fulfillment of
the requirements for the degree of Doctor
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ABSTRACT

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Abstract

"Making Socialism Work: The Shchekino Method and the Drive to Modernize Soviet Industry" examines factory-level efforts to improve socioeconomic conditions in the Soviet Union during the late twentieth century. It does so to understand Soviet socialism's capacity to evolve. Drawing on national and regional archival documents and newspapers, it contests the argument that the Soviet system was too rigid to survive in the world of computerized, post-Fordist production. By focusing on labor in the enterprise, it reveals that many of the characteristics typically associated with capitalist flexible production were present in the Soviet Union by the mid-1960s. To the extent that flexible production represents the social corollary of neoliberal political theory, "Making Socialism Work" helps to explain continuity between the Soviet and post-Soviet political economies.

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Anna Krylova has been a model advisor and intellectual and professional inspiration since I first arrived at Duke University in 2014. At Duke, I essentially had two graduate careers. During the first, I learned how to think; during the second, I figured out what I wanted to think about. Anna guided me through both phases with patience, understanding, and an unmatched attention to detail. Just as important, Anna constantly challenged me to think bigger, to be more ambitious, and to ensure that my project spoke to readers outside of the – relatively small – field of Soviet Studies. By my final year at Duke, it was clear that no one wanted me to succeed more than Anna. I cannot thank her enough for all that she has done for me over the last eight years. I am forever in her debt.

I was fortunate to work with a generous and supportive committee. Dirk Bönker made sure that I never stopped looking for connections between the Soviet Union and the rest of the world. His mastery of both European and American history never ceases to impress me. As my interests changed and I became increasingly focused on "systems" and "processes," Susan Thorne pleaded with me to make sure that I did not overlook human beings. John French was a late addition to the committee, but his commentary and suggestions on the history and sociology of labor and labor organization improved the dissertation considerably. He also came up with the title to this dissertation. My one major regret at Duke University is that I did not befriend John much earlier in my career. Oscar Sanchez-Sibony was a part of my committee until scheduling difficulties made that impossible. Still, he effectively trained me in thinking about political economy. I am very lucky that Oscar is still willing to look over and critique my work. Louis Hyman at Cornell University is not a part of my committee and, by now, he might not even recall

who I am. But I also want to thank him for welcoming a historian of the Soviet Union into Cornell's History of Capitalism Bootcamp. It was a transformative experience.

There are other faculty members at Duke who deserve mention. Phil Stern tolerated my many questions while he served – for *years* – as Director of Graduate Studies. Bruce Hall was the best methods instructor any of us could have asked for. Malachi Hacohen introduced me to the world of *Begriffgeschichte* and Lucien Febvre's *The Problem of Unbelief in the Sixteenth Century: The Religion of Rabelais*, which remains the single greatest book I have ever read. James Chappel is one of the most genuinely nice people I have ever met. I thank him for showing me what a truly great teacher and a powerful scholar looks like. Marty Miller served on my preliminary committee. I thank him for sharing his passion – one that I came to share – for intellectual history; I also thank him for encouraging me to not be afraid to pursue different research agendas. I also owe a debt to Duke's Department of Slavic and Eurasian Studies. I sent Edna Andrews far too many emails; I am so thankful she never stopped replying with such helpful answers. Elena Maksimova and Elena Kashkarova were always willing to help when I had a question about how to translate the dry – and sometimes impenetrable – language of Soviet sociology. Michael Newcity did not get frustrated with my numerous emails about the certificate in Slavic Studies. I thank him for that. I could not have followed up on any of this fantastic advice without the help of Duke University's many brilliant librarians including Ernest Zitser, Carson Holloway, Lauren Crowell, Kelley Lawton, Greta Boers, Lee Sorensen, Danette Pachtner, Carol Terry, and Amy Ravenel-Baker. And none of this would have mattered without Robin Pridgen. What can I even say about Robin at this point except that I would not have made it one month in

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I could fill multiple pages with the names of the generous people who helped me in Russia. In Moscow, the archivists and the workers at the State Archive of the Russian Federation (GARF), the Russian State Archive of the Economy (RGAE), the Archive of the Russian Academy of Sciences (ARAN), and the Russian State Archive of Social and Political History (RGASPI) were true models of professionalism and courtesy. Not only did they make my research possible; they also made it better. In Moscow, I want to especially thank Nailia Shamil'evna Podtsebneva for her company, her kindness, her boundless energy, her patience, her generosity, and her humor. I have come to think of Nailia Shamil'evna as my aunt in Russia. I miss her and I hope that COVID will subside in time that I can visit her again. I also want to thank Anna Kalinina for her patience and generosity. In Tula I want to thank everyone at the State Archive of the Tula Region (GATO) including Dmitri Nikolaevich Antonov, Tekle El'darovna Khasaiia, Olesia Larina, Asya Sergeevna Batashova, Denis Vladislavovich Nikitin, Marina Evgen'evna Sidorgenkova, Iurii Smirnov, and Natasha Aleksandrovna Dergacheva, Tekle, Olesia, Asia, and Denis always made me laugh. By the end of my stay I felt like I had real friends in Tula thanks to them. Viktor and his dogs at the GATO *khranilishche* north of Tula were always so welcoming to me. I want to send a special thanks to Dmitri and Sergei Filippovich Volodin for their generosity and expertise. I learned so much from

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I first began this journey when I enrolled at the University of Houston –

Downtown in 2009. At the time, I only meant to complete a bachelor's degree. Aaron Gillette convinced me that I could do more. For some reason, Nancy Lopez, Jose Alvarez, and John Linantud agreed. My earnest thanks to all four of them. I enrolled at Miami University in 2012 to earn a master's degree. There, Steve Norris, Robert Thurson, and Margaret Ziolkowski formed he best MA committee I could have hoped for. Thanks to Miami, I also gained four new friends: Ivan Grek, Petr Podkopaev, John Herman, and Eric Sunderman. While the journey from the University of Houston – Downtown to Miami University to Duke University has been transformative, in other ways it has been crushing. Since 2009 I have lost far too many mentors: Karen Dawisha and Drew Cayton; friends: Randal Watts, Joshua Ferguson, David Toups, Victor Sambrano, Rayhaan Traboulay, Riley Gale, and Wade Allison; and family members: Truman Garcia and John P. Roxton. The world is a much less interesting and much more depressing place due to their absence. I miss each one of them dearly.

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Introduction

In the 1974 film *Premiia* (Premium, or Bonus), Vasilii Potapov, a modest foreman at a typical Soviet construction site, refuses premium payments on behalf of his brigade. Perplexed, the construction trust's party committee questions Potapov's motives. The foreman explains that he is aware that the organization's leadership artificially lowered production assignments to make plan overfulfillment, and the bonus payments that followed, easier to obtain. As an honest worker, Potapov cannot accept these unwarranted gains. To underscore the corruption of the trust's authorities, Potapov presents a counterplan based on research he conducted with the help of Dina Milenina, a female economist in the trust's planning department. Stressing the importance of improved labor organization, the brigade, Potapov and Milenina determined, could and should work more efficiently. Originally designed to provide workers with "material incentive" to work better, premiums, the assiduous pair found, had become so ubiquitous that they failed to serve any such purpose. At least initially, the party committee reacts defensively and encourages Potapov to drop his appeal. As it turns out, they have little reason to worry. While the meeting is underway, word arrives that several workers in the foreman's brigade have already relented and accepted their bonuses. Dejected, Potapov returns to work without further protest. The members of the party committee begin to follow suit. But Lev Solomakhin, the committee secretary, suggests the commission continue its discussion. Solomakhin tells his comrades that, despite some initial discomfort, he found much to commend in Potapov's critique of the trust's behavior. He proposes the committee take a vote on how to proceed. In the end, the party committee approves a decision to reject all premium payments that cannot be economically justified.

Potapov's plea carries the day.[1]

A classic example of what Soviet scholars sometimes called a "production film" – movies, typically dramas, centered on issues of socioeconomic production – *Premiia* nicely dramatizes several significant, real-life developments that feature prominently in this dissertation: "material incentives" and their distribution; a common worker with a basic, if not advanced, grasp on economics; a female, factory-level economist trusted to conduct meaningful research and make consequential decisions; some reflexivity between knowledge production and the sociopolitical system; and the centrality of labor organization to economic success.[2] "Making Socialism Work" tells the story of why and how these, but not only these, characteristics became central to the Soviet economy during the late twentieth century. It does so by exploring the history of labor and economic management in a single Soviet enterprise – the Shchekino Chemical Combine – and beyond.[3]

The Shchekino Chemical Combine is located in the small city of Shchekino in the Tula region (*oblast'*). Until the mid-1960s, it was a forgettable, even if large, producer of nitrogen fertilizers. But in the context of the 1965 "Kosygin Reform," the enterprise ascended to national and international prominence. In 1967, the Shchekino Chemical Combine began an economic experiment – the so-called "Shchekino Method" – designed

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[1] Sergei Mikaelian (dir.), *Premiia* (Lenfil'm, 1974).
[2] On "production film" see A. Gel'man, A. Medvedev, and V. Chernykh, ""Proizvodstvennyi" fil'm: Itogi i perspektivy," *Iskusstvo kino* 3 (March 1979): 15-36; V. I. Fomin, *Zhanry kino* (Moscow: Iskusstvo, 1979).
[3] On the enduring importance of factory histories see Dominique Barjot, "Globalisation, modèles nationaux de développement et stratégies des firmes (XIX – XXI siècle)," *Revue française d'histoire économique* 1-2, 9-10 (2018): 10-36; Joshua B. Freeman, *Behemoth: A History of the Factory and the Making of the Modern World* (New York: WW Norton & Company, 2019); Görkem Akgöz, Richard Croucher, and Nicola Pizzolato, "Back to the Factory: the Continuing Salience of Industrial Workplace History," *Labor History* 61, 1 (Jan. 2020): 1-11.

to rationalize the production process. Its principal means for doing so included permitting industrial leaders to reassign workers to perform multiple jobs or dismiss them while maintaining the entirety of the wage fund afforded to the factory by state planners. With the start of the Shchekino Method, profit, profitability, and labor productivity became the key indicators of enterprise success. Petr Sharov, the then-director of the factory, reported that within four years of the establishment of the method, 1,039 of the 6,800 workers at the combine had been dismissed from employment, labor productivity had risen by 226 percent, wages had grown by thirty-six percent, and funds from the experiment had been used to build two schools, a hospital, and 30,000 square meters' worth of new housing.[4] The combination of work responsibilities was widespread. One manager at the combine reported that, by 1969, a "majority" of the workers at the factory knew two or three professions, and some had mastered as many as six.[5] The Shchekino Method did not remain exclusive to Shchekino. By the mid-1980s, it had been implemented at over 11,000 enterprises in numerous industries employing more than 21,000,000 workers in the Soviet Union.[6]

Strategies such as reducing enterprise staff and intensifying the labor process were not new to Soviet industrial leaders. Nor was using profit and labor productivity to measure enterprise performance any great innovation. But their unification to form the basis of a comprehensive production strategy – that is, the Shchekino Method – certainly

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[4] *Gosudarstvennyi arkhiv Tul'skoi oblasti* (GATO) *fond* (f.) 177, *opis'* (op.) 57, *delo* (d.) 30, *koroboka* (k.) 1218, *listy* (ll.) 85 "Minutes of the 14th Tula Regional Party Conference" (5 February 1971).
[5] *Gosudarstvennyi arkhiv Rossiisskoi Federatsii* (GARF) *fond* (f.) R – 5470, *opis'* (op.) 29, *delo* (d.) 2522, *listy* (ll.) 48-50 "Minutes of the Meeting of Workers of Communist Labor of Enterprises and Excellent Students of Vocational Schools of Tula and Mogilev Regions" (1969).
[6] R. Batkaev and S. Semin, "Shchekinskii metod v usloviiakh sovershenstvovaniia khoziaistvennogo mekhanizma," *Sotsialisticheskii trud* 1 (Jan. 1983): 43-52.

was. Such a development entailed the rise of a novel form of intellectual: a social scientist intimately familiar with factory goals and operations and capable of helping shape social and economic policy. Initially, anonymous factory sociologists played a crucial role in defining the parameters of the Shchekino Method. But their influence was soon eclipsed by that of the self-proclaimed "shopfloor economist" Vera Slepykh, whose contributions to implementing the method were unparalleled. During the late twentieth century, European, North American, and Japanese national economies restructured industrial relations in search of improved labor productivity and rates of profit.[7] They too relied on social scientific knowledge for a whole host of responsibilities including the development of theoretical models that flattered the powerful and influential as well as assistance in the task of managing society and the economy.[8] The example of the

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[7] For restructuring in Europe see Lucio Baccaro and Chris Howell, *Trajectories of Neoliberal Transformation: European Industrial Relations since the 1970s* (New York: Cambridge University Press 2017). For restructuring in the United States in the context of that country's long historical experience with capitalism see Jonathan Levy, *Ages of American Capitalism: A History of the United States* (New York: Random House, 2021). For restructuring in Japan, a great introduction is Richard Schonberger, *Japanese Manufacturing Techniques: Nine Hidden Lessons in Simplicity* (New York: Free Press, 1982). For global interpretations see Gérard Duménil and Dominique Lévy, *Capital Resurgent: Roots of Neoliberal Revolution*, trans. Derek Jeffers (Cambridge, MA: Harvard University Press, 2004); David Harvey, *A Brief History of Neoliberalism* (New York: Oxford University Press, 2007).

[8] Dean C. Tipps, "Modernization Theory and the Comparative Study of Societies: A Critical Perspective," *Comparative Studies in Society and History* 15, 2 (March 1973): 199-226; Peter Wagner, et. al., eds., *Social Sciences and Modern States: National Experiences and Theoretical Crossroads* (New York: Cambridge University Press, 1991).

"Modernization theory" and "structural functionalism" were two significant social scientific theories that legitimized the behavior of powerful public and private actors in the United States and Western Europe. For biographies of two figures associated with these movements see David Milne, *America's Rasputin: Walt Rostow and the Vietnam War* (New York: Hill and Wang, 2008) and Uta Gerhardt, *Talcott Parsons: An Intellectual Biography* (Cambridge: Cambridge University Press, 2002).

But this venture also included an entire array of new sciences called "area studies" that unambiguously served powerful interests. For an analysis of the history of Russian Studies see David C. Engerman, *Know Your Enemy: The Rise and Fall of America's Soviet Experts* (New York: Oxford University Press, 2009).

Particularly in the late twentieth century, the work of "free market" economists was central to political developments in the United States and in the rest of the world. See, among others, Juan Gabriel Valdés, *Pinochet's Economists: The Chicago School of Economics in Chile* (New York: Cambridge University Press, 1995); Johan Christensen, *The Power of Economists within the State* (Stanford: Stanford University Press, 2017); Nancy MacLean, *Democracy in Chains: The Deep History of the Radical Right's*

Shchekino Method demonstrates that the socialist world shared these goals and tactics with its capitalist counterpart.[9]

This dissertation centers on the Shchekino Chemical Combine to tell a broader story about the Soviet system's capacity to change. Its central argument is that the evolution of the world of work in the Soviet Union resembled, but by no means duplicated, the sort of transformations occurring in the capitalist world at roughly the same time. Scholars have known, for quite some time, about the myriad connections between the Soviet Union and the rest of the world. The Iron Curtain, they have shown, was not so impenetrable.[10] But "Making Socialism Work" does more than simply

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Stealth Plan for America (New York: Viking, 2017); Philip Mirowski, "The Neoliberal Ersatz Nobel Prize," in *Nine Lives of Neoliberalism*, eds. Dieter Plehwe, Quinn Slobodian, and Philip Mirowski (London: Verso, 2020), 219-254.

[9] In this way, "Making Socialism Work" also builds on a growing body of literature that highlights the importance of knowledge production to the management of Soviet socialism. See Yakov Feygin, "Reforming the Cold War State: Economic Thought, Internationalization, and the Politics of Soviet Reform, 1955-1985" (PhD Dissertation: University of Pennsylvania, 2017); Artemy M. Kalinovsky, *Laboratory of Socialist Development: Cold War Politics and Decolonization in Soviet Tajikistan* (Ithaca, NY: Cornell University Press, 2018); Kristy Ironside, *A Full-Value Ruble: The Promise of Prosperity in the Postwar Soviet Union* (Cambridge, MA: Harvard University Press, 2021).

It should be noted that, during the Cold War, astute scholars speculated that social scientists might have exerted some influence on Soviet policymaking. Without the benefit of archival records, they remained responsibly cautious about their claims. See, for example, Ellen Mickiewicz "Policy Applications of Public Opinion Research in the Soviet Union," *The Public Opinion Quarterly* 36, 4 (Winter 1972-1973): 566-578. Here, 577-578; Jeffrey W. Hahn, "The Role of Soviet Sociologists in the Making of Social Policy," in *Social Scientists and Policy Making in the USSR*, ed. Richard B. Remnek (New York: Praeger, 1977): 34-58. Here, 52-53; Janet G. Chapman, "Recent Trends in the Soviet Industrial Wage Structure," in *Industrial Labor in the USSR*, eds. Arcadius Kahan and Blair A. Ruble (New York: Permagon Press, 1979), 151-183.

[10] The best of this work includes Austin Jersild, "The Soviet State as Imperial Scavenger: 'Catch up and Surpass' in the Transnational Socialist Bloc, 1950-1960," *American Historical Review* 116, 1 (Feb. 2011): 109-132; Michael David-Fox, *Showcasing the Great Experiment: Cultural Diplomacy and Western Visitors to the Soviet Union, 1921-1941* (New York: Oxford University Press, 2011); Martin Aust, ed., *Globalisierung imperial und sozialistisch: Russland und die Sowjetunion in der Globalgeschichte 1851-1991* (Frankfurt am Main: Campus, 2013); Alex Hazanov, "Porous Empire: Foreign Visitors and the Post-Stalin Soviet State" (PhD Dissertation: University of Pennsylvania, 2016); Oscar Sanchez-Sibony, "Economic Growth in the Governance of the Cold War Divide: Mikoyan's Encounter with Japan, Summer 1961," *Journal of Cold War Studies* 20, 2 (Spring 2018): 129-154; Rachel Applebaum, *Empire of Friends: Soviet Power and Socialist Internationalism in Cold War Czechoslovakia* (Ithaca, NY: Cornell University Press, 2019).

establish yet another connection between Moscow and some other far away polity. Instead, it demonstrates that the Soviet Union was a part of a global process – the transition to flexible production, and, from there, neoliberalism – that affected, in one way or another, the entirety of the industrialized world. Soviet labor and economic history, in other words, was very much a part of global labor and economic history. How and why did this come to pass? To answer this question, this dissertation begins in the 1950s.

Josef Stalin's death in 1953 permitted the Communist Party to reconceptualize the Cold War. By the mid-1950s, what had once been seen as a geopolitical and military conflict transformed into a competition centered primarily on socioeconomic development. This evolution required the Soviet Union to pursue new domestic priorities, namely, providing a high standard of living for Soviet people, to compete with its rivals in the West. The mid-century culmination of decades-old demographic and social processes helped shape political and industrial leaders' approach to policymaking in the new milieu. During the interwar period, the Soviet economy grew largely through the mass introduction of millions of former peasants from the countryside into productive labor. But between the late 1950s and the early 1960s, the surplus of underemployed workers dried up. From then on, the economy would need to grow through the intensification of production per worker. Eschewing the coercive methods employed during the Stalin period, the party turned to the provision of material incentives, the gradual development of a consumer society, and the erection of a modern welfare state – administered, even as it was, through enterprises – to try to incentivize workers to work

harder and more effectively.[11]

The application of advanced production technologies was an important part of the Communist Party's efforts to navigate socioeconomic change. In the 1950s, the "petrochemical revolution" arrived in the Soviet Union. Chemical production, a capital-intensive endeavor that promised to contribute to the manufacture of both capital- and consumer-goods, boomed. The transformation of the Shchekino Gas Factory, a gasification facility in the Tula region, is illustrative of this tendency. Founded in 1946, the factory's method of burning coal to produce gas was already anachronistic by the time production began nine years later. But in the context of what Nikita Khrushchev called the "chemicalization" of the national economy, the Shchekino Gas Factory got a new lease on life. During the Seven Year Plan (1959-1965), the works was repurposed into a foundation for the construction of a chemical enterprise specializing in the production of fertilizers. By the early 1960s, the rechristened Shchekino Chemical Combine had become one of the major chemical enterprises in the Soviet Union, sometimes appropriately referred to as an "industrial giant."

Neither the Shchekino Chemical Combine nor any other Soviet factory was prepared to alter its day-to-day operations in accordance with the new efficiency mandate. To help navigate the economy through change, Soviet intellectuals eagerly turned their attention to solving problems with production. Though not always for the

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[11] Consumption is not treated in this dissertation. For excellent, recent, studies of consumption in the Soviet Union during the late twentieth century see Lewis H. Siegelbaum. *Cars for Comrades: The Life of the Soviet Automobile* (Ithaca, NY: Cornell University Press, 2008); Natalya Chernyshova, *Soviet Consumer Culture in the Brezhnev Era* (New York: Routledge, 2013); K. A. Dooley, "Selling Socialism, Consuming Difference: Ethnicity and Consumer Culture in Soviet Central Asia, 1945-1985" (PhD Dissertation: Harvard University, 2016); Virginia Carter Olmsted McGraw, "Soviet by Design: Fashion, Consumption, and International Competition during Late Socialism, 1948-1982" (PhD Dissertation: University of North Carolina – Chapel Hill, 2020).

same reasons, scholars and industrial leaders gravitated towards employing "scientific management" to steer social evolution. The ascension of management entailed the formation of new institutions, most importantly the State Committee on Labor and Wages, and the revitalization of old ones such as the All-Union Central Council of Trade Unions. Simultaneously, underdeveloped systems of knowledge such as economics, sociology, and the scientific organization of labor were reinvigorated. Intellectual, political, and industrial leaders, sometimes drawing on the example of the Eastern European people's republics or even the United States, began taking seriously categories and concepts – including profit, labor productivity, and social structure – that had been neglected for decades. Each was seen, at least by some, as part of an overall schema that could contribute to improved economic performance.

But by the mid-1960s the Soviet system began showing signs of economic trouble. Following at least some of the suggestions advanced by intellectuals in the popular and learned press, the party began implementing various economic experiments at individual enterprises and state farms to try to recapture some lost momentum. The Shchekino Chemical Combine was not among the first facilities to utilize new economic metrics or practices. Nevertheless, the enterprise made significant strides towards rationalization. Most importantly, the combine's new chief economist, Vera Slepykh, spearheaded initiatives such as the erection of new factory-level institutions and educational programs that taught workers the basics of contemporary economics.

Meanwhile Nikita Khrushchev, the political figure that helped set transition in motion, fell out of favor with the party elite. In 1964, he was removed from power and replaced by the duumvirate of Leonid Brezhnev and Alexei Kosygin. The following year,

this pair initiated a collection of reforms that bore the unmistakable mark of the contemporary economic debates in Soviet periodicals and the real-life changes ongoing in Eastern Europe. Succinctly, the Kosygin Reform, as it came to be known, sought to improve production efficiency by turning over more power to individual enterprises and their managers. The implementation of the Kosygin Reform – or the "new system of planning and economic incentives" as it was called on the enterprise level – was a complicated and drawn-out process. So many managers and workers lacked basic economic education that simply measuring reform's outcome proved challenging. And yet it persisted. At the Shchekino Chemical Combine, the initial results were encouraging even if necessarily incomplete. What administrators – including the inimitable Vera Slepykh, who at times seemed to be implementing reform on her own – did find was promising. Already by March 1967, just three months after the Kosygin Reform began at the Shchekino works, the once upside-down ratio between the growth of labor productivity and the growth of wages had been corrected. But the logic of reform led many to discuss how to build on what seemed to already be working. In turn, intellectuals and industrial leaders alike began earnestly discussing how and if the release of redundant labor could further improve the financial position of individual enterprises.

The Kosygin Reform did not put an end to industrial leaders' newfound habit of conducting economic experiments. In the summer of 1967, the "Shchekino Experiment" began. Over the course of the experiment, workers were shuffled around, retrained, asked to work multiple jobs, or dismissed in the name of enterprise profitability. Management did not implement these strategies alone; key institutional and intellectual leaders also

played an important role in administering the experiment. As it turns out, the Soviet Union was not alone in restructuring labor on the enterprise level. First in Japan, and later in the West, industrial enterprises began experiencing the transformation from Fordist to flexible production. Named for its primary innovator Henry Ford, Fordism is typically associated with the combination of economies of scale – that is, the mass production of low-cost commodities – and mass consumption made possible by relatively high wages.[12] Drawing on Taylorist "scientific" principles, Fordist production methods utilized advanced technology, such as the assembly line, to integrate disparate, routinized labor processes. As Robert Linhart once wrote, Fordism is simply "an application of the Taylor system to mass production."[13] In exchange for their labor, workers enjoyed comparatively high wages, effective social services, and job security ensured by strong labor unions and a political economy structured by Keynesian regimes with the will to regulate the capitalist economy.[14] Though hardly a monolith, from the 1920s through the 1970s, Fordism was the prevailing production regime in much of the industrialized world.[15] But by the 1970s the economy centered on Fordist economies of scale had run

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[12] Stephen Meyer III, *The Five Dollar Day: Labor, Management, and Social Control in the Ford Motor Company, 1908-1921* (Albany: State University of New York Press, 1981); Simon Clarke, "What in F—'s Name is Fordism?," in *Fordism and Flexibility: Divisions and Change* (New York: St. Martin's Press, 1992), 13-30.

[13] Robert Linhart, *Lénine, les paysans, Taylor*: *essai d'analyse matérialiste historique de la naissance du système productif soviétique* (Paris: Editions du Seuil, 1976), 85 fn1.

[14] On wages in the United States see Lawrence Mishel, Jared Bernstein, and Sylvia Allegreto, *The State of Working America 2006/2007* (Ithaca: ILR Press, 2007), 119; on the welfare state in the United States see Michael B. Katz, *The Price of Citizenship: Redefining the American Welfare State* (New York: Metropolitan Books, 2001); on trade unionism in the United States see Michael Goldfield, *The Decline of Organized Labor in the United States* (Chicago: University of Chicago Press, 1987); on Keynes's influence in the United States and beyond see Peter A. Hall, ed. *The Political Power of Economic Ideas: Keynesianism Across Nations* (Princeton: Princeton University Press, 1989); on Keynes's life and thought see D. E. Moggridge, *Maynard Keynes: An Economist's Biography* (New York: Routledge, 1992).

[15] Though its influence was wide, Fordism was not always successful wherever it went. Moreover, it was rarely, if ever, copied wholesale. See, for example, Mary Nolan, *Visions of Modernity: American Business and the Modernization of Germany* (New York: Oxford University Press, 1994); Greg Grandin,

out of steam.[16] In the West, but especially in the United States and the United Kingdom, political institutions and firms gradually abandoned the stability – of wages, social security, and occupational designations – once buoyed by the Keynesian-Fordist consensus in favor of a combination of neoclassical economics and Japanese-style flexible production; while the former redirected the power of the liberal state to serve radically different ends, the latter restructured the organization of labor in much of the industrialized world.[17] David Harvey has identified the major features – multi-task labor, detailed bonus systems, the elimination of clear job demarcations, extensive on-the-job training, horizontal labor organization, increased worker responsibility, and the division of the workforce into groups of high and low job security – that distinguished flexible production from its Fordist predecessor.[18]

The Communist Party's inability, or, perhaps, refusal, to abandon Fordism and develop a response to the challenge of flexible production is often cited as the central

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Fordlandia: The Rise and Fall of Henry Ford's Forgotten Jungle City (New York: Picador, 2009); Stefan J. Link, *Forging Global Fordism: Nazi Germany, Soviet Russia, and the Contest Over the Industrial Order* (Princeton: Princeton University Press, 2020).

[16] Barry Eichengreen, *The European Economy Since 1945: Coordinated Capitalism and Beyond* (Princeton: Princeton University Press, 2007), 252-293; Robert J. Gordon, *The Rise and Fall of American Growth: The US Standard of Living since the Civil War* (Princeton: Princeton University Press, 2016).

[17] On the decline of Keynes in the United States see Angus Burgin, *The Great Persuasion: Reinventing Free Markets since the Depression* (Cambridge, MA: Harvard University Press, 2012); and in the United Kingdom see Peter A. Hall, "Policy Paradigms, Social Learning, and the State: The Case of Economic Policymaking in Britain," *Comparative Politics* 25, 3 (April 1993): 275-296. On the connection between Fordism and Keynesianism see Bob Jessop, "Towards a Schumpterian Workfare State? Preliminary Remarks on Post-Fordist Political Economy," *Studies in Political Economy* 40, 1 (Spring 1993): 7-39; Jamie Peck and Adam Tickell, "Searching for a New Institutional Fix: The *After*-Fordist Crisis and the Global-Local Disorder," in *Post-Fordism: A Reader*, ed. Ash Amin (Oxford: Blackwell Publishers, 1994), 280-315. Here, 305. For an early analysis of Japanese flexible production see Richard Schonberger, *Japanese Manufacturing Techniques: Nine Hidden Lessons in Simplicity* (New York: Free Press, 1982). On neoclassical economics and the redirection of the power of the liberal nation-state see Quinn Slobodian, *Globalists: The End of Empire and the Birth of Neoliberalism* (Cambridge: Harvard University Press, 2018).

[18] David Harvey, *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change* (Cambridge: Blackwell, 1999 [1990]), 177-178.

socioeconomic failure of the Soviet system. Unable to compete with dynamic liberal economies and unwilling to engage in what would have been an apocalyptic military encounter with the West, the Communist Party, this interpretation suggests, gave up the ghost on socialism and thus the Soviet project itself.[19] There are at least three problems with this argument. First, this literature tends to rely on high politics to analyze the totality of the Soviet system. From this perspective party decrees and political personalities can obfuscate socioeconomic evolution. Second, these authors fail to account for the varieties of flexible production. As numerous scholars have shown, flexible production, much like Fordism, was not an undifferentiated structure. To maximize its efficacy within particular national, social, and cultural traditions, industries and firms implemented flexible production strategies selectively more often than they simply mimicked Japanese innovations.[20] Finally, national transitions away from Fordism were never total. Just as Henry Ford and his acolytes failed to entirely eliminate craft- or artisanal-production, in many industrial spaces flexible production existed side-by-side with Fordist production methods.[21]

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[19] Stephen Kotkin, *Armageddon Averted: The Soviet Collapse, 1970-2000* (New York: Oxford University Press, 2001); Stephen Kotkin, "Modern Times: The Soviet Union and the Interwar Conjuncture," *Kritika* 2, 1 (2001): 111-164. Notably, these texts typically pay rather little attention to the effect of the end of the Keynesian-Fordist consensus on working people in the liberal world. For this see, among others, Claudia Goldin and Lawrence F. Katz, "Long-Run Changes in the Wage Structure: Narrowing, Widening, Polarizing," *Brookings Papers on Economic Activity* 2 (2007): 135-164; Judith Stein, *Pivotal Decade: How the United States Traded Factories for Finance in the Seventies* (New Haven: Yale University Press, 2010).
[20] Ulrich Jürgens, Thomas Malsch, and Knuth Dohse, *Breaking from Taylorism: Changing Forms of Work in the Automobile Industry* (New York: Cambridge University Press, 1993); Tetsuo Abo, ed., *Hybrid Factory: The Japanese Production System in the United States* (New York: Oxford University Press, 1994); Beverly Silver, *Forces of Labor: Workers' Movements and Globalization since 1870* (New York: Cambridge University Press, 2003), 66-69.
[21] On the survival of artisanal production see Charles F. Sabel, *Work and Politics: The Division of Labor in Industry* (New York: Cambridge University Press, 1982), 220-231; Steven P. Vallas and John P. Beck, "The Transformation of Work Revisited: The Limits of Flexibility in American Manufacturing," *Social Forces* 43, 3 (Aug. 1996): 339-361; Ray Kiely, "Globalization, Post-Fordism, and the Contemporary Context of Development," *International Sociology* 13, 1 (March 1998): 95-115; Kathryn Marie Dudley,

Focusing on production on the level of the enterprise, "Making Socialism Work" argues that the Shchekino Experiment represents the origins of an industrial system in the Soviet Union that was similar to the capitalist world's flexible production schemes. It calls this industrial system "flexible production with socialist characteristics." The dissertation is careful to show that the Shchekino Experiment was not a mere replication of capitalist managerial practices. First, even in the context of economic experimentation, dismissed workers in the Soviet Union were guaranteed work. Together with the factory trade union committee, enterprise management was responsible for finding new positions for those who had lost their job. Second, flexible production with socialist characteristics differed in the way that it distributed profits. If, in the United States, the transition to flexible production systems in the late twentieth century was accompanied by the gradual return of wealth discrepancies not seen since the Gilded Age, then the socialist experience was quite different indeed.[22] In the Soviet Union, real efforts were made to

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Guitar Makers: The Endurance of Artisanal Values in North America (Chicago: The University of Chicago Press, 2014).

[22] This is not to argue that flexible production in the United States originated in the late twentieth century. Some scholars have found evidence of flexible manufacturing much earlier. See, for example, Philip Scranton, "Diversity in Diversity: Flexible Production and American Industrialization, 1880-1930," *The Business History Review* 65, 1 (Spring 1991): 27-90 and, more recently, Joshua Murray and Michael Schwartz, *Wrecked: How the American Automobile Industry Destroyed its Capacity to Compete* (New York: Russell Sage Foundation, 2019). But in this era, flexible production proceeded in fits and starts. According to Harvey, and others, flexible production systems did not become ubiquitous until the 1960s and 1970s. See Michael J. Piore and Charles F. Sabel, *The Second Industrial Divide: Possibilities for Prosperity* (New York: Basic Books, 1984).

For comparisons between the contemporary world and the Gilded Age in the United States see, among others, Larry M. Bartels, *Unequal Democracy: The Political Economy of the New Gilded Age* (Princeton: Princeton University Press, 2010); Paul Krugman, "Why We're in a New Gilded Age," in *After Piketty: The Agenda for Economics and Inequality*, eds. Heather Boushey, J. Bradford DeLong, and Marshall Steinbaum (Cambridge, MA: Harvard University Press, 2017), 60-71; Emmanuel Saez and Gabriel Zucman, *The Triumph of Injustice: How the Rich Dodge Taxes and How to Make Them Pay* (New York: WW Norton & Company, 2019).

And on wealth discrepancies more broadly see among others, Claudia Goldin and Lawrence F. Katz, "Long-Run Changes in the Wage Structure: Narrowing, Widening, Polarizing," *Brookings Papers on Economic Activity* 2 (2007): 135-164; Judith Stein, *Pivotal Decade: How the United States Traded Factories for Finance in the Seventies* (New Haven: Yale University Press, 2010); Thomas Borstelmann,

use profit to invest in the public good. Bonus payments increased, but so did investment in housing, cultural amenities, and healthcare.

Enamored with the Shchekino Experiment's success, in 1969 the Central Committee ordered its extension through to the completion of the ninth Five Year Plan (1971-1975). Appropriately, it began to take on a new, more permanent sounding moniker: "the Shchekino Method."[23] Inspired by the dramatic changes then occurring in the Soviet Union, in the 1960s an exceptional group of social scientists working primarily in the United States speculated about the possibility of a "convergence" between socialist and capitalist systems.[24] Their discussion was short-lived, in large part due to the perception that the 1965 Kosygin Reform had amounted to naught.[25] But the Shchekino

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The 1970s: New Global History from Civil Rights to Economic Inequality (Princeton: Princeton University Press, 2012).

[23] Gertrude E. Schroeder, "Soviet Economic 'Reforms:' A Study in Contradictions," *Soviet Studies* 20, 1 (July 1968): 1-21; Abraham Katz, *The Politics of Economic Reform in the Soviet Union* (New York: Praeger, 1972); Jan Adam, *Economic Reforms in the Soviet Union and Eastern Europe since the 1960s* (Hong Kong: Macmillan Press, 1989), 40-54; G. I. Khanin, *Ekonomicheskaia istoriia Rossii v noveishee vremia: Ekonomika SSSR v kontse 30-kh godov – 1987 god* (Novosibirsk: Novosibirsk State Technical University, 2008), 2 vols., 1: 310-317; G. Kh. Popov, *Reformirovanie nereformiruemogo: popyta Alekseia Kosygina* (Moscow: Mezhdunarodnyi universitet v Moskve, 2009); O. A. Ul'ianova, "Porval ekonomicheskikh reform v SSSR vo vtoroi polovine XX v. i prichiny krakha Sovetskoi ekonomicheskoi sistemy," *Ekonomicheskii zhural* 21 (2011): 92-101.

[24] For examples of convergence see Pitrim A. Sorokin, "Mutual Convergence of the United States and the USSR to the Mixed Sociocultural Type," *International Journal of Comparative Sociology* 1, 2 (1960): 143-176; Clark Kerr, John T. Dunlop, Fredrick Harbison, and Charles A. Myers, *Industrialism and Industrial Man* (Cambridge, MA: Harvard University Press, 1960); Daniel Bell, *The End of Ideology: On the Exhaustion of Political Ideas in the Fifties* (Glencoe, Ill.: Free Press, 1960); Marion Levy, Jr., *Modernization and the Structure of Societies: A Setting for International Affairs* (Princeton: Princeton University Press, 1966); John Kenneth Galbraith, *The New Industrial State* (Boston: Houghton Mifflin, 1967).

Though this literature can be lumped together under one category, it is important to note that there were significant disagreements within the "convergence school." For an analysis see E. I. Hopper and E. G. Dunning, "Industrialisation and the Problem of Convergence: A Critical Note," *The Sociological Review* 14, 2 (July 1966): 163-186.

[25] Gur Ofer, "Reforms in the Socialist System: The Convergence Hypothesis Revisited," *National Council for Soviet and East European Research Final Report* no. 904-01 (Nov. 1989). Also see Donald R. Kelley, "The Soviet Debate on the Convergence of the American & Soviet Systems," *Polity* 6, 2 (1973): 174-196.

Method, a progeny of 1965, in fact lived on.[26] To be sure, there were adjustments to the enterprise's program. Whereas the Shchekino Experiment initially focused on rationalizing production and previously neglected economic metrics, such as profit, the second stage of the Shchekino Method also stressed the introduction of new machines and the need to address environmental problems caused by chemical production. These were not mutually exclusive ambitions. Rather, the two goals – rationalization and automation – existed side by side. This progression did not occur without a hitch. How to best manage the provision of material incentives, for example, was a topic of great concern for industrial leaders and social scientists for several years. Moreover, factors such as capital investment and environmental degradation sometimes forced the enterprise to temporarily sacrifice profit. Far from an abandonment of the goals of the Kosygin Reform, the reordering of priorities was very much consistent with it. Politicians, managers, and intellectuals had long maintained that profit was but one of many useful metrics that should be used to appraise an enterprise's performance.

The Central Committee's 1969 pronouncement also promoted the Shchekino Method's spread throughout the Soviet Union. Its dispersal proceeded erratically. Initially, no guidelines existed to manage the application of the method. As a result, enterprises took liberties to adjust it to suit their own needs, typically determined by the material conditions within their respective industry. In some cases – mostly in industries

[26] Thus, in some ways, this work buttresses the claim made by Maksim Lebskii who has traced the effects of the Kosygin Reform on Soviet workers through to the post-Soviet era. Lebskii argues that the Soviet working class of the 1990s showed "conformist" tendencies precisely because the Kosygin Reform linked the factory and the worker together in a way that was "paternalistic." The result is that workers had trouble conceiving of new ways to organize politically. See Maksim Lebskii, *Rabochii klass SSSR: Zhizn' v usloviiakh probmyshlennogo paternalizma* (Moscow: Gorizontal', 2021).

where batch production and piece wages were the norm – the method was less than effective, while in others, only certain elements of the schema were implemented. Still, it endured and adapted such that, by the mid-1970s, it was impossible to speak of a single Shchekino Method. Aware of this development, in 1978 the Central Committee adopted a new decree that permitted the universal spread of the Shchekino Method.

What happens to the history of Soviet labor and economic management when it is considered in the context of changes in the world at large? Recently, several studies have appeared that link the socialist and capitalist intellectual traditions. Together, this historiography shows how the core features of neoliberalism – defined by Johanna Bockman, this literature's pioneering figure, as a collection of ideas about how to organize an economy that shapes government policies to favor deregulation and the liberal flow of capital and trade – were not anathema to socialism in theory.[27] "Making Socialism Work" builds on this literature and shows how flexible production, typically understood as the social corollary of neoliberal political theory, was also compatible with the socialist project in practice.[28] Well before the arrival of capitalism in the 1990s, it demonstrates, Soviet workers were accustomed to multi-task labor, complicated wage and bonus systems, and the division of the labor force into groups of high and low job security. In the post-Soviet world, these practices were repurposed to serve radically different ends: that is, the enrichment of a select few rather than the construction of

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[27] Johanna Bockman, *Markets in the Name of Socialism: The Left-Wing Origins of Neoliberalism* (Stanford: Stanford University Press, 2011), 4-5. Also see Feygin, "Reforming the Cold War State;" Brian Porter-Szűcs, "From *Homo Sovieticus* to *Homo Economicus*: The Transformation of the Human Subject in Polish Socialist Economic Thought," *East European Politics and Societies and Cultures* 34, 3 (August 2020): 546-570.

[28] See David Harvey, *A Brief History of Neoliberalism* (New York: Oxford University Press, 2007).

socialism. However inadvertently, the dissertation concludes, the Soviet Union was an active participant in the spread of the socioeconomic practices that paved the way for neoliberalism.

Scholarly work on the history of the Soviet Union struggles to account for the sort of changes described in "Making Socialism Work." This is due, at least in part, to the two prevailing narratives historians have developed on the history of Soviet workers. These accounts – one, exemplified in the oeuvre of Donald Filtzer, that stresses discontinuity, and another, typified in the works of Stephen Kotkin, that emphasizes stagnation – are inextricably linked to their authors' interpretation of the thorny, interrelated issues of workers, social class, and class consciousness.

Donald Filtzer's *Soviet Workers and Stalinist Industrialization* portrays the history of the Soviet Union as the story of the betrayal of the working class. Filtzer aims to show that, attendant with the rapid industrialization drive of the 1930s was a plan to crush the working class as a pre-emptive move against revolt in order to preserve the power of a burgeoning Stalinist bureaucracy. As he tells it, this move was a successful one. The proletariat was eliminated, in part through the influx into the industrial centers of millions of former peasants who diluted collective class consciousness. What remained thereafter was a mass of de-politicized laborers whose erratic performance inhibited production.[29] After the Great Patriotic War (1941-1945), he continues in his *Soviet Workers and Late Stalinism*, the regime prioritized the restoration of the inter-war order while employing repressive measures against workers. For Filtzer, this only reproduced a

[29] Donald Filtzer, *Soviet Workers and Stalinist Industrialization: The Formation of Modern Soviet Relations, 1928-1941* (Armonk, NY: ME Sharpe, 1986).

wasteful economic order and apolitical workers alienated from the regime. Such a system could not last.[30]

But the Soviet Union did not collapse in 1953, and Stalin's immediate successor, Nikita Khrushchev, claimed to reorient the system away from the rigidity of Stalinism. Though some scholars see the Thaw as a period characterized by the softening of repressive policies in the Soviet Union, Filtzer's *Soviet Workers and De-Stalinization* argues that, for workers, real improvements were minimal. After Stalin's death the regime intensified production demands while preserving the economic planning mechanisms that denied workers control over production.[31] The Soviet system, Filtzer concludes in *Soviet Workers and the Collapse of Perestroika*, was caught in an incorrigible cycle of reproduction built on the backs of an increasingly browbeaten workforce that had no sense of itself as a class due to ceaseless discontinuities caused by demographic shifts and political repression. Able to bend without breaking, this system held on for decades, only to collapse once Communist Party leadership determined that its interests were best served by abandoning the façade of socialism and reintroducing capitalism.[32]

Stephen Kotkin, meanwhile, counters by positing that the fate of the Soviet working class had less to do with demographics or consciousness than with political institutions – namely, the Communist Party. Kotkin contends that the Bolshevik

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[30] Donald Filtzer, *Soviet Workers and Late Stalinism: Labour and the Restoration of the Stalinist System after World War II* (New York: Cambridge University Press, 2002).
[31] Donald Fitlzer, *Soviet Workers and De-Stalinization: The Consolidation of the Modern System of Soviet Production Relations, 1953-1964* (New York: Cambridge University Press, 1992).
[32] Donald Filtzer, *Soviet Workers and the Collapse of Perestroika: The Soviet Labour Process and Gorbachev's Reforms, 1985-1991* (New York: Cambridge University Press, 1994).

Revolution was a workers' revolution not due to the actions of any collection of workers but because thereafter categories of class were institutionalized.[33] Arguing against Filtzer, Kotkin's *Magnetic Mountain* suggests that during the inter-war industrialization drive, the Communist Party aimed to fill the working class as a political institution with workers that were both loyal and capable. To that end, he continues, the party developed a pervasive political language to foment allegiance and improved work discipline through the establishment of a regimented socioeconomic system that prioritized heavy industry. At the end of the 1930s, both projects – the creation of a working class and an industrial base – had indeed been accomplished. None of this, Kotkin argued, was especially unique. Inspired by the same impulse to rationalize and taxonomize as its capitalist rivals, the Soviet Union, Kotkin continued, was merely one component of a pan-European condition called "modernity."[34]

In a critical article published in 2014, Anna Krylova argued that Kotkin's interpretation of Soviet modernity amounts to a "master narrative of stagnation:" a vision of a Soviet system that, once matured in its inter-war form, promptly ossified and remained, on a fundamental level, unchanged. As Krylova demonstrated, the result was a reification of an all-too-familiar trope: the Soviet Union as an industrialized, modern

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[33] Stephen Kotkin, "1991 and the Russian Revolution: Sources, Conceptual Categories, Analytical Frameworks," *The Journal of Modern History* 70, 2 (June 1998): 384-425.
[34] Kotkin, *Magnetic Mountain*.
On Russian and Soviet modernity also see Peter Holquist, ""Information is the Alpha and Omega of Our Work": Bolshevik Surveillance in its Pan-European Context," *The Journal of Modern History* 69, 3 (Sep. 1997): 415-450; David L. Hoffmann and Yanni Kotsonis, eds., *Russian Modernity: Politics, Knowledge, Practices* (New York: St. Martin's Press, 2000); David L. Hoffmann, *Stalinist Values: The Cultural Norms of Soviet Modernity, 1917-1941* (Ithaca, NY: Cornell University Press, 2003); Michael David-Fox, *Modernity, Ideology, and Culture in Russia and the Soviet Union* (Pittsburgh: University of Pittsburgh Press, 2015).

society that nonetheless represented a "radical other of the [dynamic] West."[35] The veracity of this analysis is plain to see in Kotkin's treatment of the relationship between workers and the economy during the second half of the twentieth century. In two works published in 2001, Kotkin posited that the Soviet social structure proved incapable of evolving beyond the 1930s. Failure to change here concerns the unremitting emphasis on the primary pillars of class politics: industrial output and industrial workers. The prioritization of the former, Kotkin suggests, prevented planners from addressing the dearth of available consumer goods in the Soviet Union, while adherence to the latter inhibited economic "flexibility" by denying managers the ability to cut expenditure by terminating laborers. These outdated principles were not merely impediments to economic vitality but, as reform-minded politicians soon discovered, also attributes of a rotten system.[36] But for Kotkin, refusal to adapt also refers to the sustained repression of alternative political principles, such as the rule of law and private property, in the name of a politics built on class issues. Thus, reasoning that they embodied class and class-consciousness, Kotkin presents civil war era (1917-1922) political commissars, apparatchiks of the 1970s, and *perestroika* era (1985-1991) "watchdog structures," as indistinguishable *ad hoc* Communist Party appendages charged with the task of safeguarding allegiance to inert, political dogma and stifling dissent.[37]

Thus, despite their different analytical points of departure, both Donald Filtzer and Stephen Kotkin portray a post-war Soviet order that mirrored that of the inter-war

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[35] Anna Krylova, "Soviet Modernity: Stephen Kotkin and the Bolshevik Predicament," *Contemporary European History* 23, 2 (April 2014): 167-192. For quote see 168.
[36] Kotkin, *Armageddon Averted*; Kotkin, "Modern Times."
[37] Stephen Kotkin, "Class, the Working Class, and the Politburo," *International Labor and Working-Class History* 57 (Spring 2000): 48-52.

period. But there is good reason to question this view of Soviet history. In recent years several studies, some more interested in directly addressing the "stagnation" trope than others, have appeared that examine the wide array of changes that occurred in the Soviet Union during the post-Stalin period. Most of this literature examines culture, but there are equally important analyses of late twentieth-century Soviet intellectual and political history.[38] In labor and working-class historiography, a pair of articles written by Alexandra Oberländer has offered tremendous insight into work attitudes and the depictions of workers in media during the 1960s and 1970s.[39] Significantly, in 2017 Krylova published a follow-up to her earlier critique of Kotkin. In "Imagining Socialism in the Twentieth Century," she unearthed complex, and occasionally contradictory, shifts in the Soviet Union's social, cultural, and institutional structure already during the 1930s. Even in the inter-war period, Krylova demonstrated, the Soviet system was anything but stagnant.[40]

Elsewhere, several scholars focusing on the topic of political economy have stressed persistent change in Soviet and East European history.[41] The global context

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[38] See the relevant essays in Edwin Bacon and Mark Sandle, eds., *Brezhnev Reconsidered* (New York: Palgrave Macmillan, 2002); Nerginga Klumbyte and Gulnaz Sharafutdinova, eds., *Soviet Society in the Era of Late Socialism, 1964-1985* (Lanham, MD: Lexington Books, 2013); Boris Beige and Martin Deuerlein, eds., *Goldenes Zeitalter der Stagnation? Perspektiven auf die sowjetische Ordnung der Breznev-Ära* (Tübingen: Mohr Siebeck, 2014); and Dina Fainberg and Artemy M. Kalinovsky, eds., *Reconsidering Stagnation in the Brezhnev Era: Ideology and Exchange* (Lanham, MD: Lexington Books, 2016).

[39] Alexandra Oberländer, "Cushy Work, Backbreaking Leisure: Late Soviet Work Ethics Reconsidered," *Kritika* 18, 3 (Summer 2017): 569-590; Alexandra Oberländer, "Working Faces, Facing Work: Portraying Workers at Work and the Search for the Soviet Individual," *The Soviet and Post-Soviet Review* 48, 2 (June 2021): 211-234.

[40] Anna Krylova, "Imagining Socialism in the Soviet Century." *Social History* 42, 3 (July 2017): 315-341.

[41] As two well-known historians have recently commented, the field of Soviet studies is at just the start of an "economic turn." See Anna Krylova and Elena Osokina, "The Economic Turn and Modern Russian History," *The Soviet and Post-Soviet Review* 43 (2016): 265-270.

Notable texts that addressed the Soviet economy recently, but prior to the latest "economic turn" include Elena Osokina, *Our Daily Bread: Socialist Distribution and the Art of Survival in Stalin's Russia, 1927-1941*, trans. Kate Transchel and Greta Bucher (Armonk, NY: ME Sharpe, 2001); Philip Hanson, *The*

looms large in this literature. In a study published in 2011, Johanna Bockman explained that certain aspects of neo-classical economic theory – in many ways the precursor to neoliberal political theory – were not necessarily designed with markets in mind. To take but one example, especially sophisticated economists in Hungary and Yugoslavia well understood that supply and demand could unproblematically serve the interests of socialist planners. These sorts of ideas became so entrenched that, by the end of the Cold War, these countries were well-prepared to navigate neoliberal reforms.[42] In related works, Adam Leeds and Yakov Feygin have pointed out the importance of intellectuals – many of whom were in dialogue with, or influenced by, Western ideas – to Soviet economic management.[43] Using very different approaches, James Heinzen and Kristy Ironside have stressed the importance of money in the Soviet economy.[44] Chris Miller has argued that late Soviet and early post-Soviet economic reforms were inspired in part by conversations between influential figures in the Soviet Union and the People's Republic of China.[45] In a volume newly available in English translation, Elena Osokina has demonstrated that the Soviet Union was more than willing to serve Western consumers at

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Rise and Fall of the Soviet Economy: An Economic History of the USSR from 1945 (New York: Longman, 2003); Robert C. Allen, *From Farm to Factory: A Reinterpretation of the Soviet Industrial Revolution* (Princeton: Princeton University Press, 2003); Julie Hessler, *A Social History of Soviet Trade: Trade Policy, Retail Practices, and Consumption, 1917-1953* (Princeton: Princeton University Press, 2004).

[42] Bockman, *Markets in the Name of Socialism*.

[43] Adam Leeds, "Spectral Liberalism: On the Subjects of Political Economy in Moscow" (PhD Dissertation: University of Pennsylvania, 2016); Feygin, "Reforming the Cold War State."

Also see Yakov Feygin, ""The Honest Marxist:" Yakov Kronrod and the Politics of Cold War Economics in the Post-Stalin USSR," *History of Political Economy* 51, 1 (2019): 100-126; Adam E. Leeds, "Administrative Monsters: Yurii Yaremenko's Critique of the Late Soviet State," *History of Political Economy* 51, 1 (2019): 127-151.

[44] James Heinzen, *The Art of the Bribe: Corruption under Stalin* (New Haven: Yale University Press, 2016); Ironside, *A Full-Value Ruble*.

[45] Chris Miller, *The Struggle to Save the Soviet Economy: Mikhail Gorbachev and the Collapse of the USSR* (Chapel Hill: University of North Carolina Press, 2016).

its elite retail institutions.[46] All point to the possibility, or even, from Oscar Sanchez-Sibony's point of view, the necessity, of understanding the history of the Soviet Union as inextricably linked to the history of capitalism.[47]

Despite the connection between political economy and labor, a concerted effort to consider Soviet labor in a transnational or global context has yet to be undertaken.[48] Some progress has nevertheless been made. A collection of articles published in a 2018 edition of the journal *Labor History* represents an important step in the right direction. Together, Malika Bahovadinova, Kateryna Burkush, Leyla Sayfutdinova, and Ljubica Spaskovska have demonstrated that migration, material incentives, and knowledge transfer – among the central issues of twentieth century labor history in the

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[46] Elena Osokina, *Stalin's Quest for Gold: The Torgsin Hard-Currency Shops and Soviet Industrialization* (Ithaca, NY: Cornell University Press, 2021).

[47] Sanchez-Sibony, *Red Globalization*. Also see Andrew Sloin and Oscar Sanchez-Sibony, "Economy and Power in the Soviet Union, 1917-1939," *Kritika* 51, 1 (Winter 2014): 7-22

[48] This despite the fact that labor history long ago took a transnational, and even global, turn. See, for example,
Marcel van der Linden, *Transnational Labour History: Explorations* (Hants: Aldershot, 2003); Jan Lucassen, ed. *Global Labour History: A State of the Art* (New York: Peter Lang, 2006); Julie Greene, *The Canal Builders: Making America's Empire at the Panama Canal* (New York: Penguin Press, 2009); *Labour History Review* 74, 3 (2009) and 75, 1 (2010), both of which are dedicated to the topic of transnational labor history; Joan Allen, Alan Campbell, and John McIrloy, eds. *Histories of Labour: National and International Perspectives* (Pontypool: Merlin Press, 2010); Leon Fink, ed. *Workers Across the Americas: The Transnational Turn in Labor History* (New York: Oxford University Press, 2011); Deborah Cohen, *Braceros: Migrant Citizens and Transnational Subjects in the Postwar United States and Mexico* (Chapel Hill: University of North Carolina Press, 2011); Neville Kirk, *Labour and the Politics of Empire* (Manchester: Manchester University Press, 2011).

Moreover, labor history of Eastern Europe is in fact flourishing. For important, recent contributions see Jeanette Z. Madarász, *Working in East Germany: Normality in a Socialist Dictatorship, 1961-1979* (New York: Palgrave Macmillan, 2006); Mark Pittaway, The Workers' State: Industrial Labor and the Making of Socialist Hungary, 1944-1958 (Pittsburgh: University of Pittsburgh Press, 2012); Martha Lampland. *The Value of Labor: The Science of Commodification in Hungary, 1920-1956* (Chicago: The University of Chicago Press, 2016); Alina-Sandra Cucu, *Planning Labour: Time and the Foundations of Industrial Socialism in Romania* (New York: Berghahn Books, 2019); Marsha Siefert, ed. *Labor in State-Socialist Europe, 1945-1989: Contributions to a History of Work* (Budapest: Central European University Press, 2020); Ondřej Klípa, "Escaping the Double Burden: Female Polish Workers in State Socialist Czechoslovakia," *Slavic Review* 78, 4 (Winter 2019): 1009-1027.

West – are crucial to understanding the world of work in the Soviet Union.[49] For her part, Emily Elliott has shown how some Soviet-era labor institutions survived and found new life in post-Soviet Russia, prompting the question: what exactly made Soviet institutions socialist?[50]

"Making Socialism Work" sets out to bring these bodies of literature together. Specifically, it takes up Krylova's challenge to develop new narratives of Soviet history that are capable of accounting for change. It does so by showing that the processes Bockman uncovered in Hungary and Yugoslavia were also at work in the Soviet Union; just as important, it argues that these theoretical musings had tangible effects on Soviet society, particularly at the intersection of economic management and labor. "Making Socialism Work" asserts that, just as scholars now understand Soviet political economy as a constituent element in the transnational and global changes of the late twentieth century, so too must they come to grips with how well the history of its labor fits in a similar framework.

To understand the significance of the Kosygin Reform and the Shchekino Method it is first necessary to briefly consider industrial organization during the Stalin period.[51]

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[49] Malika Bahovadinova, "The 'Mobile Proletariat:' The Production of Proletariat Labor on a Soviet Construction Site," *Labor History* 59, 3 (May 2018): 277-294; Kateryna Burkush, "On the Forest Front: Labour Relations and Seasonal Migration in 1960s-1980s," *Labor History* 59, 3 (May 2018): 295-318; Leyla Sayfutdinova, "Mapping the Mobility of Azerbaijani Soviet Engineers: Linking West and East?," *Labor History* 59, 3 (May 2018): 316-330; Ljubica Spaskovska, "Building a Better World? Construction, Labour Mobility and the Pursuit of Collective Self-Reliance in the 'Global South,' 1950-1990," *Labor History* 59, 3 (May 2018): 331-351.

[50] Emily Joan Elliott, "Migrants and Muscovites: The Boundaries of Belonging in Moscow, 1971-2002" (PhD Dissertation: Michigan State University, 2019).

[51] Agricultural labor and organization are beyond the scope of this dissertation. The key works on the topic include Moshe Lewin, *Russian Peasants and Soviet Power: A Study of Collectivization* (Evanston, Ill.: Northwestern University Press, 1968); N. Ivnitskii, *Kollektivizatsiia i raskulachivanie: nachalo 30-kh godov* (Moscow: AIRO-XX, 1996); R. W. Davies and S. G. Wheatcroft, *The Years of Hunger: Soviet Agriculture, 1931-1933* (New York: Praeger, 2004); L. N. *Denisova, Ischezaiushchaia derevnia Rossii: nechernozem'e v 1960–1980e gody* (Moscow: RAN, 1996); I. E. Zelinin, *Agrarnaia politika N. S.*

The construction of socialism was the *raison d'être* of the Soviet system. From the late 1920s, Soviet socialism was closely identified with an emphasis on heavy industry, the collectivization of agriculture, and the abolition of private property.[52] In lieu of a market, the Soviet economy behaved, at least ostensibly, in accordance with a plan. Developed by the State Planning Commission (Gosplan) based in Moscow, the plan determined inputs and outputs for all enterprises and state farms in the Soviet Union. As with other institutions in the Soviet Union, Gosplan worked at the behest of the party. Soviet economic planning has been described as "the most complex organization ever constructed by mankind."[53] The full scope of this titanic undertaking defies simple explication. It can nevertheless be said that, allowing for some variation depending on era, in conjunction with the party, Republic-level authorities, branch ministries, regional councils, enterprises, and other groups, Gosplan's primary responsibility was the production of a centralized plan for directing the Soviet economy. These plans established economic target indicators for durations of five years.[54] The economy was divided into two parts. Group I indicated capital-goods production; group II corresponded

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Khrushcheva i sel'skoe khoziaistvo (Moscow: RAN, 2001); Aaron Hale-Dorrell, *Corn Crusade: Khrushchev's Farming Revolution in the post-Stalin Soviet Union* (New York: Oxford University Press, 2019).

[52] That these features would ultimately come to define Soviet socialism was not apparent until the late 1920s. From 1921 until 1928 the Soviet socioeconomic system was defined by the New Economic Policy (NEP). Under NEP, the party controlled the "Commanding Heights" of the economy – including banking, international trade, and energy production – while the production of consumer goods remained in the hands of private producers. On NEP see, among others, Alexander Rabinowitch and Richard Stites, eds. *Russia in the Era of NEP: Explorations in Soviet Society and Culture* (Bloomington: Indiana University Press, 1991); Diane P. Koenker, *Republic of Labor: Russian Printers and Soviet Socialism, 1918-1930* (Ithaca, NY: Cornell University Press, 2005); Oscar Sanchez-Sibony, "Global Money and Bolshevik Authority: The NEP as the First Socialist Project," *Slavic Review* 78, 3 (Fall 2019): 694-716.

[53] Paul R. Gregory, *The Political Economy of Stalinism: Evidence from the Soviet Secret Archives* (New York: Cambridge University Press, 2004), 4.

[54] The scholarly literature on Stalin-era economics is massive. For a recent overview see Andrew Sloin and Oscar Sanchez-Sibony, "Economy and Power in the Soviet Union, 1917-1939," *Kritika* 15, 1 (Winter 2014): 7-22.

with consumer-goods production.[55] Though the latter grew significantly after 1953, the former remained the priority throughout the Soviet period. The plan was no unchanging monolith. Planners, ministries, and enterprises constantly negotiated and renegotiated input and output targets. As one scholar has commented, it would be more accurate to say that the Soviet economy was "centrally managed" rather than "centrally planned."[56]

Soviet enterprises were governed by the principle of one-man management (*edinonachalie*).[57] Enterprise managers were entrusted with enormous responsibilities including, among other things, ensuring that the factory fulfilled Gosplan's dictates; protecting the plant's financial and material resources; and hiring qualified personnel. Together with a factory trade union leader, whose responsibilities were broad, and a party member, who ensured political constancy, the manager comprised the "*troika*," the locus of power in the factory.[58] Workers had no independent representation. Referred to as "schools of communism," trade unions, whose activities were directed by a centralized institution called the All-Union Central Council of Trade Unions, were party institutions charged with pursuing maximum productivity and teaching Marxist-Leninist cultural values.[59] Though the party did occasionally stress the importance of cost accounting (*khosraschet*) and sought to make industries more profitable, this goal was always

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[55] For a clarification of these groupings see Alec Nove, *The Soviet Economy: An Introduction* (New York: Praeger, 1961), 260-263.
[56] Eugene Zaleski, *Stalinist Planning for Economic Growth* (Chapel Hill: The University of North Carolina Press, 1980), 484. Zaleski is not alone in questioning the status of the Soviet economy as planned. See Moshe Lewin, "The Disappearance of Planning in the Plan," *Slavic Review* 32, 2 (June 1973): 271-287.
[57] Hiroaki Kuromiya, "Edinonachalie and the Soviet Industrial Manager, 1928-1937," *Soviet Studies* 36, 2 (April 1984): 185-204.
[58] Joseph S. Berliner, *Factory and Manager in the USSR* (Cambridge, MA: Harvard University Press, 1957).
[59] Isaac Deutscher, *Soviet Trade Unions: Their Place in Soviet Labour Policy* (London and New York: Royal Institute of International Affairs, 1950); Jay B. Sorenson, *The Life and Death of Soviet Trade Unions 1917-1928* (New Brunswick: Transaction Publishers, 1969).

secondary to plan fulfillment, which stressed, above all, gross output and the primacy of heavy industry. Factories produced not to meet consumer demand on a "free" market but rather to satisfy society's needs, as determined by the party via Gosplan, by fulfilling, and, even better, overfulfilling, the plan.[60]

Soviet emphasis on gross output had at least three important consequences for enterprises. First, meeting the plan typically meant maximum production at maximum speed.[61] To ensure production quotas could be met, managers often hoarded labor, resulting in labor shortages elsewhere.[62] This tendency was exacerbated by persistent problems with supplies. Frequently, shipments would fail to arrive until late in a given month. To meet the plan, workers would have to labor intensely for short bursts at the end of the month; this practice was referred to as "storming."[63] Second, plan overfulfillment was, in a sense, a punishable offense. When a target was overfulfilled the new, achieved number typically became the goal in the subsequent plan. Western scholars, following Joseph Berliner's classic study *Factory and Manager*, typically called this the "ratchet principle." Clever managers would maneuver around the ratchet principle by depressing production potential; slight overfulfillment, they found, would typically appease authorities without placing onerous demands on, and thus drawing the ire of, workers.[64] Third, because output was typically measured in gross tonnage,

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[60] Joseph S. Berliner, "The Informal Organization of the Soviet Firm," *The Quarterly Journal of Economics* 66, 3 (Aug. 1952): 342-365. Here, 350.
[61] As Moshe Lewin has argued, by 1929 "tempos decide everything" was more than a slogan: "it was policy." See Lewin, "The Disappearance of Planning," 275.
[62] Filtzer, *Soviet Workers and Stalinist Industrialization*, 127.
[63] Joseph S. Berliner, "A Problem in Soviet Business Administration," *Administrative Science Quarterly* 1, 1 (June 1956): 86-101.
[64] Berliner, *Factory and Manager*, 78-80.

inefficient usage of raw materials and resources was in effect encouraged.[65]

Beginning in 1930, factories that both produced and sold goods manufactured internally and had an account with the State Bank were subject to a turnover tax. The one-time tax was applied anytime an enterprise sold a product from its own stock. In industry, there were three types of prices: factory wholesale price, industry wholesale price, and retail trade price. The factory wholesale price was the most consequential on the factory level. Uniform across an entire industry, it was formed using two metrics. Planned cost, the first of these measurements, included raw and supplementary materials, fuel, amortization, wages, social insurance deductions, and administrative expenses. Capital and land rent were not included in this figure. The second was planned profit, generally pinned at around five percent of total cost. The size of the tax was determined by measuring the difference between two planned prices; as a ratio of planned prices; or in the case of grain, petroleum, and natural gas, as a percentage of a single, aggregate sum. The first, decidedly more malleable, method was officially preferred. But in some cases, special turnover tax rates were developed to incentivize production. In chemical production, for example, the turnover tax was figured as a ratio of a product's retail price less any applicable rebates or the industry's wholesale price.[66] The turnover tax was a

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Focusing his study on the ministry- rather than the factory-level, David Granick has challenged Berliner's "ratchet" thesis. See David Granick, "The Ministry as the Maximizing Unit in Soviet Industry," *Journal of Comparative Economics* 4, 3 (April 1980): 255-273.

[65] Robert W. Campbell, *The Soviet-Type Economies: Performance and Evolution* (Boston: Houghton Mifflin, 1974 [1960]), 49.

[66] This discussion is based on the cogent summary – rare in literature that discusses Soviet tax policy – provided by Peter Pettibone, "The Soviet Turnover Tax," *Public Finance* 19, 4 (Jan. 1964): 361-379.

This definition would have been controversial in the Soviet Union. For a similar interpretation see A. I. Anchishkin, *Nalog s oborota – konkretnaia forma pribavochnogo produkta sotsialisticheskogo proizvodstva* (Moscow: Vysshaia shkola, 1962). For a ruthless critique that rejects the argument that the turnover tax was a "price forming indicator" see A. Aleksandrov and G. Rabinovich, "Eshche raz o prirode naloga s oborota," *Financy SSSR* 1 (1963): 29-34.

major source of income for the Soviet state. By 1985, it was accountable for thirty-three percent of the total money accumulated in the Soviet Union, as well as one quarter of the national budget revenue and almost sixty-three percent of taxes.[67]

Except for a brief period immediately following the civil war and at the start of the first Five Year Plan (1928/1929-1932), "wage levelling" was not a goal of the Communist Party or the Soviet state.[68] Beginning in 1931 the government introduced wage differentials to the benefit of skilled workers to motivate their unskilled comrades to seek additional training.[69] The famous axiom included in 1936 (Stalin) Constitution – "from each according to his ability, to each according to his work" – made it clear that wage scales would be a part of the world of work in the Soviet Union for some time.[70] Like the factories where they worked, industrial workers were given priority over those in other sectors of the economy. Workers were additionally divided according to the Marxist distinction between "productive" and "non-productive" labor. The former, which was relatively well compensated, included industrial, agricultural, and construction workers and was said to produce values that could fund its own reproduction. This was not true of the latter, which included services, cultural work, and so on.[71]

During the Stalin period, industrial workers' wages were set by the branch ministries. Most workers received two types of payment. The first was a base wage

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[67] Ernest Raiklin, "On the Nature and Origin of Soviet Turnover Taxes," *International Journal of Social Economics* 15, 5 (Jan. 1988): 3-64. Here, 3.
[68] Hiroaki Kuromiya, *Stalin's Industrial Revolution: Politics and Workers, 1928-1932* (Cambridge: Cambridge University Press, 1988), 244-246, 280-285.
[69] Abram Bergson, *The Structure of Soviet Wages: A Study in Socialist Economics* (Cambridge: Harvard University Press, 1944), 97-103.
[70] "Konstitutsiia (Osnov Zakon) Soiuza Sovetskikh Sotsialisticheskikh Respublik," *Pravda* 6 December 1936, 2-4. Here, 2.
[71] See Y. Rusanov, "Allocation of the Soviet Labor Force in Productive and Nonproductive Areas," *Soviet Review* 2, 7 (July 1961): 57-68.

(*stavka*) that essentially was contingent on fulfilling the most basic requirements of a job assignment. Generally, base wages were very low to motivate workers to fulfill their norms. Workers who failed to do so, and thus could not even claim a base wage, typically lived very hard lives. Others were paid progressive piece rates. Progressive piece rates provided workers with additional compensation after output exceeded a certain threshold.[72] Scholars have referred to the second type of payment as the "socialized wage." This wage included a range of social benefits – including health care, education, and housing – provided by the state.[73] Other disciplining mechanisms took on an overtly political character. "Socialist competition" campaigns, often managed by the trade unions, challenged workers to outperform one another in the name of constructing the bright future of socialism; winners received some combination of public recognition, bonus compensation, additional leisure days, or privileged access to cultural amenities such as the theater or sanatoria.[74]

In the Soviet Union, all citizens had a right and a duty to work. Those who refused to do so could be severely punished. A series of laws passed throughout the 1930s to improve labor discipline culminated at the end of the decade with a decree that made absenteeism and abdication of job responsibilities criminal offenses.[75] These edicts were imposed by the People's Commissariat of Labor (Narkomtrud), which was also responsible for regulating the labor market more generally. After Narkomtrud was

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[72] Donald A. Filtzer, "The Soviet Wage Reform, 1956-1962," *Soviet Studies* 41, 1 (Jan. 1989): 88-110. Here, 90; Leonard Joel Kirsch, *Soviet Wages: Changes in Structure and Administration since 1956* (Cambridge, MA: MIT Press, 1972), 1-19.
[73] Solomon M. Schwartz, *Labor in the Soviet Union* (New York: Praeger, 1952), 238-250.
[74] Lewis H. Siegelbaum, *Stakhanovism and the Politics of Productivity in the USSR, 1935- 1941* (Cambridge: Cambridge University Press, 1988).
[75] Schwartz, *Labor in the Soviet Union*, 83-84, 106-110.

abolished in 1933, many of its laws simply went unenforced. Often desperate for labor, especially of the skilled kind, factory managers were not necessarily inclined to notify authorities about relatively minor violations of labor discipline.[76] After the war, Stalin set out to reestablish the industrial order he had overseen during the interwar period. From 1946 until Stalin's death in 1953, little changed in the world of work.[77]

This dissertation engages seriously with Soviet economic figures. There was a time when this would have been a controversial decision.[78] That is no longer the case. Mark Harrison notes that contemporary scholars use three sets of data to analyze the national economy of the Soviet Union. No set of data is perfect, and these are not exceptions to that rule. The official, published Soviet data, generally accepted to be far too optimistic, were compiled by the Central Statistical Administration and other agencies. A second body of numbers was collected by the United States Central Intelligence Agency. Its claims are probably no less exaggerated than the official numbers upon which they are based. The third and final body of data was created by the eminent Russian economic Grigorii Khanin. Khanin's work, which involved recalculating Soviet economic numbers essentially from scratch, was herculean. Yet, as Harrison observes, Khanin's methods are rarely clear, and his claims are not always reproducible.

For five reasons, this dissertation relies on official Soviet data throughout. First, with two exceptions – the 1930s, when Khanin's claims are exceptionally pessimistic,

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[76] Filtzer, *Soviet Workers and Stalinist Industrialization*, 135.
[77] Filtzer, *Soviet Workers and Late Stalinism*.
[78] For a classic study on the promises and limitations of using Soviet statistics see Vladimir G. Treml and John P. Hardt, eds., *Soviet Economic Statistics* (Durham: Duke University Press, 1972).

and the 1950s, when his claims are exceptionally optimistic – the primary quantitative difference between the three data sets pertains to actuals, not to trends. In other words, while the three sets might not agree on the tons of pig iron produced in one year, they typically would reflect similar growth patterns in the production of pig iron. Second, as one historian has recently commented when grappling with the same problem, these were the numbers Soviet planners, analysts, and, most importantly for this study, enterprise directors and economists used on a day-to-day basis. There is no secret body of data reflecting "real" Soviet numbers waiting to be found by a dogged researcher in some anonymous, well-secured storage unit in Moscow. Third, utilizing official data allows for some consistency between national- and local-analyses. Khanin's contribution, as heroic as it was, did not reconsider the regional records of a nation that spanned around one-sixth of the world's surface for seven decades. This third point is especially important because, according to Harrison, enterprise-level data – which is featured prominently throughout this dissertation – is likely the most trustworthy statistical information Soviet industrial and economic officials produced.[79] Finally, utilizing official statistics and localized statistics presumably allows for some consistency between accounting methods. Soviet enterprises, for example, did not follow plans designed by the Central Intelligence Agency; they pursued Gosplan's assignments.

"Making Socialism Work" consists of seven chapters. Chapter one explains why and how the petrochemical revolution took root in the Soviet Union in general and in the

[79] Mark Harrison, "Soviet Economic Growth since 1928: The Alternative Statistics of G. I. Khanin," *Europe-Asia Studies* 45, 1 (1993): 141–67; Yakov Feygin, "Reforming the Cold War State: Economic Thought, Internationalization, and the Politics of Soviet Reform, 1955-1985" (PhD Dissertation: University of Pennsylvania, 2017), 28-29.

Tula region in particular. The chapter that follows analyzes the lengthy and complex debates among social scientists and industrial leaders on the problems of Soviet economic management. Chapter three explains how the combination of demographic difficulties, industrial evolution, and social scientific ideas contributed to a growing culture of economic experimentation in the Soviet Union. The impressively methodical and careful spread of the Kosygin Reform beginning in the 1965 is covered in chapter four. Chapters five and six focus on the two stages of the Shchekino Method; they explain the trials and tribulations of "flexible production with socialist characteristics" in the enterprise." Chapter seven goes beyond the walls of the Shchekino Chemical Combine to trace the spread of this constellation of relations throughout the Soviet economy. Together, chapters five through seven demonstrates the Kosygin Reform's influence on the shape of the Soviet system. The dissertation concludes with an epilogue that considers the relationship between Soviet reform efforts in global context and in relation to the socioeconomic system that succeeded the Soviet Union.

1: From Gas Factory to Industrial Giant: The Shchekino Chemical Combine and the "Chemicalization" of the Soviet Economy

As in most of the developed world, the "petrochemical revolution" began in the Soviet Union in the 1950s.[1] Chapter one explains the political, socioeconomic, and demographic conditions that contributed to, and supported, this development. Josef Stalin's death in 1953 permitted the Communist Party to reconceptualize the Cold War. By the mid-1950s, what had once been seen as a geopolitical and military conflict transformed into a competition centered primarily on socioeconomic development.[2] This evolution required the Soviet Union to pursue new domestic priorities, namely a better quality of life for Soviet people, to compete with its rivals in the West. At the time, there was good reason to believe that this approach would work. By some metrics, the Soviet economy appeared to be outperforming its (US) American adversary. The culmination of ongoing demographic and social processes helped shape political and industrial leaders' approach to policy making in the new milieu. During the interwar period, the Soviet economy grew largely through the mass introduction of millions of former peasants from the countryside into productive labor. But sometime between the late 1950s and the early 1960s, the surplus of underemployed workers dried up. From then on, the economy would need to grow through the intensification of production per worker. Efficiency, in

[1] For a recent, brilliant, discussion of the "petrochemical revolution" see Adam Hanieh, "Petrochemical Empire: The Geo-Politics of Fossil-Fuelled Production," *New Left Review* 130 (July-August 2021): 25-51. For a book-length study of the chemical industry in the context of the petrochemical revolution see Louis Galambos, Takashi Hikino and Vera Zamagni, eds., *The Global Chemical Industry in the Age of the Petrochemical Revolution* (Cambridge: Cambridge University Press, 2006).

[2] This does not hold true for the Global South, which experienced tremendous violence during the Cold War. See Paul Thomas Chamberlin, *The Cold War's Killing Fields: Rethinking the Long Peace* (New York: Harper Collins, 2018).

other words, would have to improve. Eschewing the coercive methods employed during the Stalin period, the party turned to the provision of material incentives and the erection of a modern welfare state to try to incentivize workers to work harder and more effectively.

The application of advanced production technologies was an important part of the Communist Party's efforts to navigate socioeconomic change. Chemical production, a capital-intensive endeavor that promised to contribute to the manufacture of both capital- and consumer-goods, boomed.[3] As the chapter shows, the transformation of the Shchekino Gas Factory, a gasification facility in the Tula region, is illustrative of this tendency. Founded in 1946, the factory's method of burning coal to produce gas was already anachronistic by the time production began nine years later. But in the context of what Nikita Khrushchev called the "chemicalization" of the national economy, the Shchekino Gas Factory got a new lease on life. During the Seven Year Plan (1959-1965), the works was repurposed into a foundation for the construction of a chemical enterprise specializing in the production of fertilizers. By the early 1960s, the rechristened Shchekino Chemical Combine had become one of the major chemical enterprises in the Soviet Union, sometimes appropriately referred to as an "industrial giant."

Most famous in Russia for its proximity to Lev Tolstoy's estate *Iasnaia Poliana*,

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[3] At least some of this initial success can be explained by considering the relatively backwards state of the Soviet chemical industry in the early twentieth century. The Bolsheviks inherited a challenging situation in this regard. As one Soviet historian wrote "Tsarist Russia actually had no chemical industry." See V. S. Lel'chuk, "Stroitel'stvo khimicheskoi promyshlennosti SSSR v period pervoi piatiletki," *Voprosy istorii* 10 (Oct. 1958): 3-21. Here, 4.

The production of chemicals began in earnest during the industrialization drive in the 1930s and expanded considerably in the context of the war. See Pavel Anatol'evich, "Razvitie khimicheskoi promyshlennosti v Tul'skoi oblasti (1929-1958 gg.)" (PhD [*kandidat*] Dissertation: Moscow Pedagogical University, 2009).

where the great author spent much of his life, the city of Shchekino is located in central Russia near the Upa River at the southern edge of the Moscow Coal Basin. During the Soviet period the basin's reserves, spanned across six regions (*oblast'*) and covering around 120,000 square kilometers, were estimated at up to fourteen billion tons. Though prospectors knew of its existence since at least the eighteenth century, mining of the Moscow Coal Basin did not actually begin until the early days of the reign of Alexander II in 1855. The opening of the Moscow-Kursk railway in 1868 and the near simultaneous construction of two small, foreign-owned factories – one that made refractory bricks, sewer pipes, and chemical equipment, and another that produced sulfuric and nitric acids – prompted the creation of a small, thirteen-cabin settlement near what was then the village of Novaia Kolpna in the Iasenkovskaia volost' of the Krapivenskii district (*uezd*).[4]

Mining, primarily for low-quality brown coal but also for iron ore, began in the Iasenskovskaia volost' in the 1870s. The work was primitive and grueling. Coal miners had only a manual pick to accomplish their task. Mined iron ore was raised to the surface two to three poods – between seventy-two and 108 pounds – at a time using a manual gate with a hemp rope and a wooden bucket. There was no electricity in the mines, so workers relied on open fires to pierce through the thick clouds of soot that collected underground. Medical assistance was nonexistent. The workday was long – between

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[4] N. N. Lialin, *Shchekino* (Tula: Tul'skoe knizhnoe izdatel'stvo, 1956), 5-6, 10-12; M. S. Shvetzov and V. S. Yablokov, eds. *Excursion to the Moscow Coal Basin* (Moscow: United Scientific-Technical Publishing Office, 1937), 27; E. Rusanova, "Shagi rodnogo goda," *Znamia kommunizma* 19 December 1968, 2; I. V. Aksenova, P. I. Dubovskogo, B. I. Ivanova, et. al., *Podmoskovnyi ugol'nyi bassein* (Moscow: Nedra, 1967), 11.

On the importance of *Iasnaia poliana* to Tolstoy see, among others, Rosamund Bartlett, *Tolstoy: A Russian Life* (London: Profile, 2010). To ensure its preservation, in 1921 the Council of People's Commisars nationalized *Iasnaia Poliana* and turned it into a museum. Tolstoy's estate remains a popular tourist destination in the contemporary Russian Federation.

twelve and fourteen hours – and compensation was meager. Most of the miners came from nearby villages and, as work in the pits was only part time, remained firmly tied to the peasant economy. For the owners of the mines this was advantageous, as it meant that there was no need to build housing beyond a few barracks for use during inclement weather.

At the turn of the century, financiers attempted to further develop the Krapivenskii district around its plentiful, even if flawed, natural resources. The program failed, however, due to the challenges inherent in burning moist brown coal and stiff and capable competition from oil manufacturers and coal producers in the Donbass region. Convinced that the Moscow Coal Basin could serve as little more than a reserve, tsarist officials chose not to develop the region any further. Their negligence is exemplified by simple production statistics. If, in 1895, 3,086 tons of coal were mined in the region's pits, then, by 1914, that total had climbed to only 3,803 tons.

The fate of the region changed dramatically following the Bolshevik seizure of power in 1917. In the context of the fledgling regime's plan to electrify the country, miners were charged with providing coal for use in Moscow and Tula. Geologists studied the region to determine where to build new mines while engineers and their crews repaired the old ones. Labor conditions began to improve. By the early 1920s the pits were provided with electricity and mechanized equipment – such as steam and tremor lifts – to improve production and ease workers' physical burden. These steps revolutionized production. In 1921 alone, the region mined over 4,000,000 poods of coal. As the Soviet Republic took aim at primitive production processes, so too did it reorganize regional political administration. In the 1920s, the Bolshevik Party abolished

the medieval volost' administrative unit. Along with three others, the Iasenkovskaia volost' was incorporated into a newly formed district (*raion*) called Shchekino.[5]

Figure 1.1
Map of the Tula Region
Source: *Narodnoe khoziaistvo Tul'skoi oblasti: Statisticheskii sbornik* (Tula: Priokskoe knizhnoe izdatel'stvo, 1967), 10.

Fourteen years later, in 1938, the village of Novaia Kolpna took the same name. Russian-language speakers will recognize the root of the word "Shchekino" as "shcheki" meaning "cheeks" or, in the case of non-human animals, "jowls." Numerous legends

[5] Lialin, *Shchekino*, 10-17; Rusanova, "Shagi rodnogo goda," 2.
On the electrification of Russia and the Soviet Union see Jonathan Coopersmith, *The Electrification of Russia, 1880-1926* (Ithaca, NY: Cornell University Press, 1992).

attempt to explain why the city is so named. The most colorful involves Lev Tolstoy. While in a first-class wagon of a regional train, the writer allegedly began to dine on a meal of bread and herring. The odor of the fish offended another passenger, who quickly snatched up the lunch and hurled it out of a window of the moving train. According to the fable, Tolstoy responded by doing the same to the traveler's dog. Overcome with rage, the passenger viciously slapped Tolstoy across the face. Another, much less dramatic, origin tale speculates that Shchekino was simply named after the nearby Shchekino railway station.[6]

Within two years of its renaming, the population of Shchekino had grown to 15,000. The town boasted a dairy, a bakery, and around 1,000 residential buildings. Much of this progress was lost during the Great Patriotic War. A fifty-two-day Nazi occupation ravaged Shchekino's pits and left the region, including *Iasnaia Poliana*, in a state of ruin.[7] As a part of the postwar rebuilding effort, the fourth Five Year Plan (1946-1950) called for the erection of a gasification factory – a plant that produces gas by burning coal at high temperatures – in Shchekino. Construction of the Shchekino Gas Factory began in 1946; described by Ivan Iunak, the first secretary of the Tula Regional Committee of the Communist Party of the Soviet Union (CPSU) from 1961 until 1985, as a "central" feature of the region's fifth Five Year Plan (1951-1955), the facility was completed in May of 1955, a full century after mining in the Moscow Coal Basin first began.[8]

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[6] "S chego nachinaetsia Shchekino…," *Znamia kommunizma* 11 February 1969, 4.
[7] Lialin, *Shchekino*, 18
[8] D. Oshevskii, *Shchekino* (Tula: Peresvet, 2004), 145-146; D. Burtsev, *Tul'skaia khimiia za 50 let* (Tula: Priokskoe knizhnoe izdatel'stvo, 1969), 142; I. Kh. Iunak, *Ocherki istorii Tul'skoi organizatsii KPSS (1937-1983)*, 2 vols. (Tula: Priokskoe knizhnoe izdatel'stvo, 1984), 2: 171, 136-137.

By the time workers at the Shchekino Gas Factory began to shovel coal for gasification, the Soviet system was undergoing significant changes. No clear line of succession was in place when Josef Stalin died on 5 March 1953. The stuff of palace intrigue, the details of the power struggle that ensued lie beyond the scope of this study. By early 1955 it was clear that party leader Nikita Khrushchev had emerged victorious. Khrushchev had promised to grow the level of domestic consumption without any reallocation of investments in capital-goods production; instead, he proposed to challenge the working population – primarily, though not entirely, through political mobilization – to better exploit extant production capacity.[9] Coercion was off the table not just because the new leadership preferred a more humane approach to governance but also because the gulag system had been hemorrhaging rubles for some time.[10]

The path forward, at least for industry, became more apparent at a conference on industrial production in Moscow in May 1955. There, select enterprise personnel discussed various factory-level problems. G. N. Glebovskii, director of the Urals Machine Plant, complained that enterprise directors' work was overburdened by centralization. He speculated that it would be beneficial for administration to forfeit some control over the work of the enterprises, especially as it pertained to personnel. The director of the Leningrad Kirov Plant, I. S. Isaiev, echoed Glebovskii's view on directors'

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[9] On the link between economic issues and the power struggle that followed Stalin's death see George W. Breslauer, *Khrushchev and Brezhnev as Leaders: Building Authority in Soviet Politics* (London: Allen & Unwin, 1982), 23-38.

The most famous example of Khrushchev's attempt to mobilize the country behind ambitious programs was the "Virgin Lands" project. See Michaela Pohl, "The Virgin Lands between Memory and Forgetting: People and Transformation in the Soviet Union, 1954-1960" (PhD Dissertation: Indiana University, 1999).

[10] Paul R. Gregory and Valery Lazarev, eds., *The Economics of Forced Labor: The Soviet Gulag* (Stanford: Hoover Institution Press, 2003).

powers and further suggested offering better material incentives for workers implementing new technology. Noting distortions in the production norm (quota) and wage scales, milling machine operator N. I. Lupandin of the Kharkov Tractor Works protested the fact that in some cases workers performing precisely the same duties were paid drastically different wages.[11]

But Nikolai Bulganin, then the head of the Soviet government, delivered the conference's most significant address. While noting the positive developments in Soviet industry over the previous decades, Bulganin argued that to continue this trend it would be necessary for labor productivity to be raised to a "new level." This, he suggested, could be ensured by the continuous application of science and new technologies in the production process. For Bulganin, two industries – metallurgical and chemical – stood out for their potential contributions. Bulganin was careful to avoid fetishizing technology, suggesting that it should only be applied rationally and with clear economic rationale. "Technology," he remarked, "cannot be separated from economics." Some behaviors would need to change. Bulganin complained that industrial leaders, who often preferred to utilize outdated machinery rather than deal with the sometimes-arduous process of introducing new technologies, represented a significant impediment to this task. Moreover, Bulganin chastised enterprise management for allowing administration to grow unwieldy, draining state resources and hindering performance in the process. Bulganin connected these goals to the international sphere:

> [W]e do not doubt that in the economic competition between the two social systems the socialist system, as the more progressive, will win. However, we know that victory does not come of itself, but is organized and brought about by people. In order to defeat capitalism in economic

[11] "Vsesoiuznoe soveshchanie rabotnikov promyshlennosti," *Izvestiia* 18 May 1955, 2.

> competition, we must have advanced technology, better organization of production, and higher labor productivity.[12]

Two decrees approved in the summer of 1955 show that these declarations were more than idle talk. A resolution adopted two months after Bulganin's speech charged industrial leadership, from ministers to chief engineers, with "mak[ing] provision for technical and economic indices that compare with the highest achieved at advanced native and foreign enterprises" when designing new enterprises and repairing those already in operation.[13] Ratified on 9 August 1955, the second was designed to grant more power to enterprise directors over planning, capital construction, and wages. Significantly, it called for the creation of an enterprise-level fund "for the improvement of the living conditions of the workers and improvement of production" beginning on 1 January 1956. According to the resolution, rubles could be spent on the introduction of new technologies and equipment; improvement of the services provided to workers including renovation of cafeterias and childcare facilities; and bonuses for individual workers. Additionally, the director was granted the right to award exceptional supervisors and workers with bonus funds for their work towards plan fulfillment.[14]

Also in May 1955, a new institution – the State Committee of the Council of Ministers of the USSR on Questions of Labor and Wages (Goskomtrud) – was

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[12] "Rech' Predsedatelia Soveta Ministrov SSSR N. A. Bulganina," *Pravda* 17 May 1955, 1.

An article published in the *Kommunist*, the theoretical journal of the Central Committee of the Communist Party, two months later built on the conference's proceedings. The authors suggested more emphasis on technological advances in production to improve labor productivity and more opportunity for enterprise leadership to exert direct influence – independent of interference from the ministries – on the organization of labor and the economic performance of the enterprise. See "Nastoichivo ulushchat' khoziaistvennoe rukovodstvo v promyshlennosti," *Kommunist* 10 (July 1955): 3-12.

[13] "O zadachakh po dal'neishemu pod"emu promyshlennosti, tekhnicheskomu progressu i uluchsheniiu organizatsii proizvodstva," *Pravda* 14 July 1955, 1-3. Here, 1.

[14] *Postanovleniia tsentral'nogo komitete KPSS po voprosam promyshlennosti i stroitel'stva (1952-1955 gg)* (Moscow: Politizdat, 1956), 91-102.

established to take over from the industrial ministries the task of managing changes in labor and remuneration.[15] Goskomtrud was immediately charged with overseeing an ambitious wage reform, the first since the first Five Year Plan (1928-1932). The reform, whose effects are partially summarized in table 1.1, updated antiquated output norms in accordance with changes in technology, what Soviet industrial leaders referred to as

Table 1.1
Skill Differentiation of Basic Wages According to Pre-reform and Post-reform Skill Scales in Selected Industries

Branch of Industry	Number of Skill Scales		Number of Skill Groups in Skill Scales		Ratio of Basic Wage of Highest Skill Group to that of Lowest	
	Pre-reform	Post-reform	Pre-reform	Post-reform	Pre-reform	Post-reform
Ferrous metals	7	1	12	10	3.34-4.06:1	3.2:1
Mining Iron Ore	11	1	10	8	2.52-3.62:1	2.6:1
Chemicals[a]	4	2	7, 8, 10	7	2.01-3.24:1	2.3:1, 2.6:1
Machine Construction	900	1	7, 8	6	1.86-3.56:1	2.0:1
Meat and Milk	192	1	7, 8	6	1.25-2.20:1	1.8:1

[a] includes mining of materials for chemical production

Source: R. A. Batkaev and V. I. Markov, *Differentsiia zarabotnoi platy v promyshlennosti SSSR* (Moscow: Ekonomika, 1964), 67. Reproduced from Leonard Joel Kirsch, *Soviet Wages: Changes in Structure and Administration since 1956* (Cambridge: MIT Press, 1972), 73.

"technically-substantiated norms;" increased the base wage; adjusted base wages across industries so as to better reflect workers' skill level and occupational hazards; emphasized bonus payments for technical innovations and increases in the productivity of labor; and minimized the sometimes substantial wage differentials between groups of

[15] "V Prezidiume Verkhnovnogo Soveta SSSR," *Pravda* 25 May 1955, 2.

workers.[16]

In addition to restructuring remuneration standards, political and industrial leaders took other steps to incentivize good work. In the mid-to-late 1950s, a modern welfare state began to form. Retirement and disability benefits were significantly expanded.[17] Low-income workers were exempted from paying income taxes. Secondary and higher education were made tuition free. Paid maternity leave was expanded to cover sixteen weeks.[18] Massive investment in housing put millions of Soviet citizens into private apartments for the first time.[19] Meanwhile, draconian disciplinary measures were rescinded. The size of the gulag system declined precipitously.[20] A notorious law that had once made absenteeism, tardiness, and abdication of job responsibilities criminal offenses was at last repealed.[21] Slowly, but surely, some factories began transitioning to a five-day workweek.[22] And in July 1958, the Supreme Soviet approved a statute that prevented enterprises from dismissing any worker or white-collar employee (*sluzhashchii*) without the approval of the relevant trade union.[23]

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[16] For a critical analysis of the reform see Donald A. Filtzer, "The Soviet Wage Reform, 1956-1962," *Soviet Studies* 41, 1 (Jan. 1989): 88-110. According to Bulganin, in some cases norms were so outdated that workers were able to overfulfill them by as much as 200 percent. See "Doklad Predsedatelia Soveta Ministrov SSSR, tovarishcha N. A. Bulganina," *Pravda* 22 February 1956, 1-6. Here, 5.
[17] "Zakon o gosudarstvennykh pensiiakh," *Pravda* 15 July 1956, 1-2.
[18] Alec Nove, *An Economic History of the USSR, 1917-1991* (New York: Penguin, 1992 [1969]), 356.
[19] On housing during the Khrushchev period see Steven E. Harris, *Communism on Tomorrow Street: Mass Housing and Everyday Life after Stalin* (Washington, DC: Woodrow Wilson Center Press, 2013) and Christine Varga-Harris, *Stories of House and Home: Soviet Apartment Life During the Khrushchev Years* (Ithaca: Cornell University Press, 2015).
[20] Steven A. Barnes, *Death and Redemption: The Gulag and the Shaping of Soviet Society* (Princeton: Princeton University Press, 2011).
[21] "Ob otmeme sudebnoi otvetstvennosti rabochikh i sluzhashchikh za samovolnyi ukhod s predpriiatii i iz uchrezhdenii i za progul bez uvazhitelnoi prichiny," *Vedomosti verkhovnogo soveta SSSR* 10 (852) (8 May 1956): 246-248.
[22] N. Chumakhov, "Dva vykhodnykh dnia v nedeliu," *Izvestiia* 26 August 1958, 2; B. Iashechkin, "Subbota i voskrensen'e – vykhodnye," *Izvestiia* 11 September 1958, 2.
[23] *Profsoiuzy SSSR: Dokumenty i materialy*, 5 vols. (Moscow: Profizdat, 1963), 4: 121.

Changes in international relations and ideology occurred simultaneously and were no less sweeping. At the Twentieth Party Congress in February 1956 Khrushchev articulated a cautious vision of the Soviet Union's relationship with the capitalist world. Convinced that the logic of capitalism would inevitably lead to yet another catastrophic war, Josef Stalin had prepared the Soviet Union for Western aggression by constructing a socioeconomic order centered on heavy industry and military defense. Khrushchev abandoned Stalin's apocalyptic visions. Wary of war in a nuclear age and confident in the inherent advantages of the planned socialist economy, he proposed the Soviet Union instead pursue a policy of "peaceful coexistence" with the West. Khrushchev's doctrine did not put an end to the Cold War, but it did alter its terms of engagement. Within the paradigm of peaceful coexistence, the pivotal factor in the rivalry between the Soviet Union and the United States would not – at least in the North Atlantic arena – be a direct, deferred military conflict, but rather socioeconomic and cultural development. The system that proved best able to provide material and cultural abundance for its citizens would emerge victorious.[24] The Soviet Union thus set out to, in Khrushchev's words, "catch up and overtake" the West – in particular the United States – in agricultural, light

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[24] "Doklad Pervogo sekretaria TsK KPSS," *Pravda* 15 February 1956, 1-11. Here, 3-4. The concept of "peaceful coexistence" with the West was not new in Soviet political theory or practice. See, for example, Warren Lerner, "The Historical Origins of the Soviet Doctrine of Peaceful Coexistence," *Law and Contemporary Problems* 29, 4 (Autumn 1964): 865-870. Nor was "catch up and overtake" an innovation. Stalin, for example, used the phrase at the start of his industrialization drive in 1928. See "Rech' tov. Stalina," *Pravda* 24 November 1928, 3-4. Here, 3.

On the shift from military to economic competition see, among others, Vladislav Zubok and Constantine Pleshakov, *Inside the Kremlin's Cold War: From Stalin to Khrushchev* (Cambridge, MA: Harvard University Press, 1997 [1996]), 184-185.

Stalin's last major work indicates that he maintained until the very end the belief that the capitalist world would erupt into another series of wars. See. I. Stalin, *Ekonomicheskie problemy sotsializma SSSR* (Moscow: Gospolitizdat, 1952), 77-86.

industrial, and heavy industrial production.[25]

Scholars of Cold War politics have often focused their attention on determining the degree to which the United States military deterred Soviet leaders from pursuing world revolution and pushed them to adopt a set of policies that approximated peaceful coexistence.[26] But in the context of mid-twentieth century geopolitical developments, Khrushchev's turn towards socioeconomic competition was sound political calculus. The Soviet Union had won the Great Patriotic War and emerged from it one of two military giants. By virtue of their consistently antifascist position before the outbreak of the war, both the Red Army and the European communist movement enjoyed significant prestige throughout the continent.[27] The interwar era of "capitalist encirclement" had come to an end and – with the Eastern European people's republics to its west and the People's Republic of China and the Democratic People's Republic of Korea to its east – the Soviet Union had a collection of apparently comradely neighbors for the first time.[28] So, when

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[25] According to his biographer, Khrushchev first spoke of "catching and overtaking" the United States in milk, butter, and meat production in May 1957. See William Taubman, *Khrushchev: The Man and His Era* (New York: WW Norton, 2003), 305. But the phrase was soon used much more broadly and with reference to every sector of the Soviet economy. See Jutta Scherrer, "'To Catch up and Overtake' the West: Soviet Discourse on Socialist Competition," in *Competition in Socialist Society*, ed. Katalin Miklossy and Melanie Ilic (New York: Routledge, 2014), 10-22. Here, 11-12.

[26] There are two distinct schools of thought relating to (US) American nuclear weapons and Soviet international relations. The first argues that nuclear weapons deterred the Soviet Union from actively attempting to export revolution. For examples of this point of view see John J. Mearsheimer, *Conventional Deterrence* (Ithaca, NY: Cornell University Press, 1983). The second argues that nuclear weapons stoked the Communst Party's fears, motivating Soviet leaders to approach foreign relations with hostility and aggression. This is sometimes referred to as the "spiral" school. For examples of this point of view see Richard Ned Lebow, *Between Peace and War: The Nature of International Crisis* (Baltimore: The Johns Hopkins University Press, 1981).

[27] For a discussion of the high point of European leftism in the context of popular front movements see David Priestland, *The Red Flag: A History of Communism* (New York: Grove Press, 2009), 182-233.

[28] For "capitalist encirclement" during the interwar period see James Harris, "Encircled by Enemies: Stalin's Perceptions of the Capitalist World, 1918-1941," *Journal of Strategic Studies* 30, 3 (June 2007): 513-545; and during the postwar period see Vladimir Pechatnov, "The Soviet Union and the World, 1944-1953," in *The Cambridge History of the Cold War*, eds. Melvyn P. Leffler and Odd Arne Westad (New York: Cambridge University Press, 2010), 1: 90-111.

the United States provided Western Europe with aid from Marshall Plan beginning in 1948, the Soviet Union established the Council for Mutual Economic Assistance the following year.[29] And when the liberal powers formed the North Atlantic Treaty Organization in 1949, the Soviet Union countered by organizing its own international security body, the Warsaw Pact, in 1955.[30] Notwithstanding the benefits they accrued from their benefactors in the United States, decolonization in the Global South also appeared to be quickly eroding what remained of the international influence of the beleaguered western states.[31]

The domestic situation was no less promising. In the wake of the dissolution of the Soviet Union in 1991 it has become fashionable to portray Soviet socialism as irreparably flawed, destined to collapse, and thus incapable of challenging (US) American economic power.[32] This teleological perspective tends to overlook, or perhaps brush aside, the fact that in the mid-twentieth century prominent Western observers from across the political spectrum – including the Minister of Health of the United Kingdom Aneurin Bevan, Central Intelligence Agency director Allen W. Dulles, and the eminent economist Abram Bergson – took quite seriously the possibility that the Soviet economy

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[29] On the Council for Mutual Economic Assistance see André Steiner "The Council of Mutual Economic Assistance – An Example of Failed Economic Integration?" *Geschichte und Gesellschaft* 39, 2 (June 2013): 240–258. On the Marshall Plan see Michael J. Hogan, *The Marshall Plan: America, Britain, and the Reconstruction of Western Europe, 1947-1952* (New York: Cambridge University Press, 1987).
[30] Gustav Schmidt, ed. *A History of NATO: The First Fifty Years*, 3 vols. (New York: Palgrave, 2001); Vojtech Mastny and Malcolm Byrne, eds. *A Cardboard Castle? An Inside History of the Warsaw Pact, 1955-1991* (New York: Central European University Press, 2005).
[31] Elizabeth Buettner, *Europe after Empire: Decolonization, Society, and Culture* (Cambridge: Cambridge University Press, 2016).
[32] János Kornai *The Socialist System: The Political Economy of Communism* (Princeton: Princeton University Press, 1992); Martin Malia, *The Soviet Tragedy: A History of Socialism in Russia, 1917-1991* (New York: Free Press, 1994); Stephen Kotkin, *Armageddon Averted: Soviet Collapse, 1970-2000* (New York: Oxford University Press, 2000); Stephen Kotkin, "Modern Times: The Soviet Union and the Interwar Conjuncture," *Kritika* 2, 1 (2001): 111-164; Yegor Gaidar, *Collapse of an Empire: Lessons for Modern Russia*, trans. Antonina W. Bouis (Washington, DC: Brookings Institution Press, 2007).

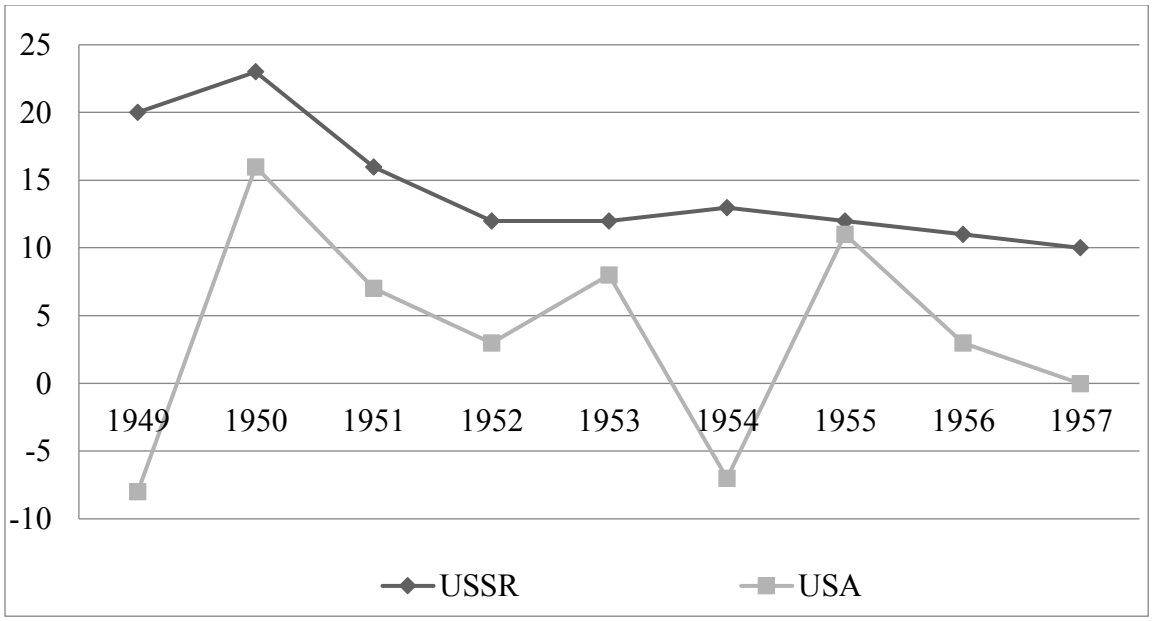

Figure 1.2
Comparison of Rate of Growth in Industrial Production between USSR and USA, 1949-1957
Source: Source: A. M. Alekseev, et. al., *Ekonomicheskoe sorevnovanie mezhdu SSSR I SShA: Kritika vzgliadov Amerikanskikh burzhaznykh ekonomistov* (Moscow: Gosplanizdat, 1959), 51.
Figures represent rate of growth in percentage of previous year.

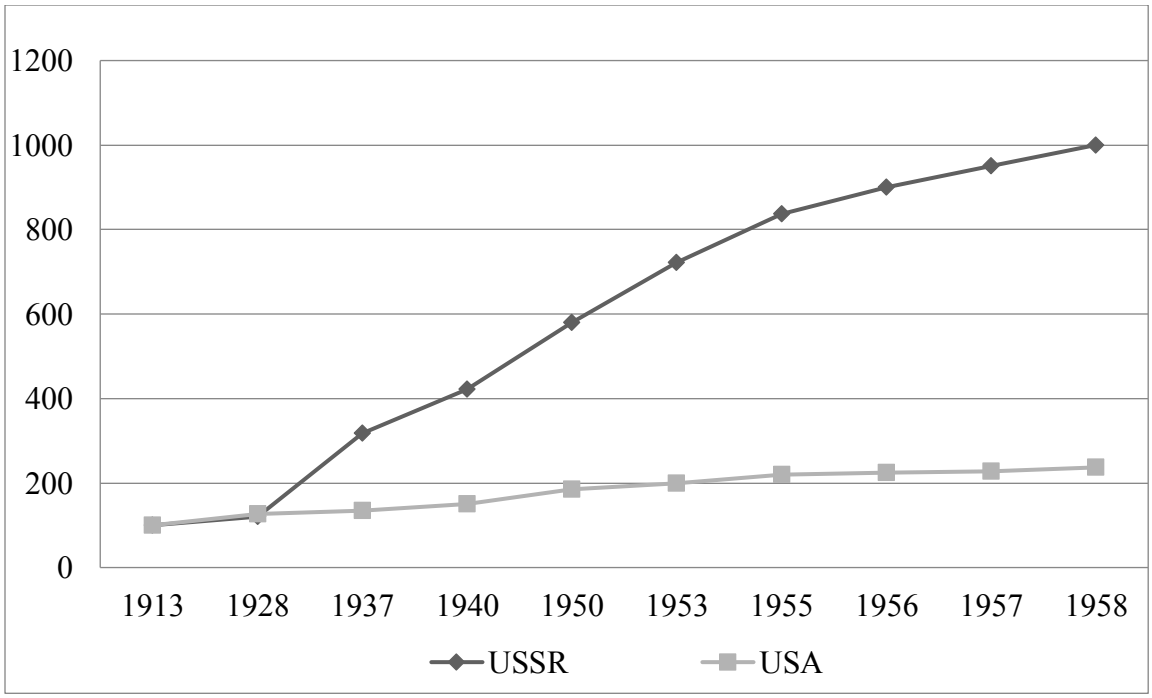

Figure 1.3
Rate of Growth of Labor Productivity in Industry in the USSR and USA, 1913-1958
Source: *Narodnoe khoziaistvo SSSR v 1958 godu: Statisticheskii ezhegodnik* (Moscow: TsSU, 1959), 112.

Table 1.2
Industrial Production in Percentage of World Total

Year	Socialist Countries	Capitalist Countries
1917	2	98
1937	9	91
1957	33	67

Source: Alekseev, et. al., *Ekonomicheskoe sorevnovanie mezhdu SSSR i SShA*, 25.

might do just that.[33] One contemporary report issued by the State Planning Commission (Gosplan) in Moscow claimed that the rate of growth of industrial production in the Soviet Union had been consistently higher than that of the United States for some time. As figure 1.2 shows, the Soviet Union had also bested the United States in the rate of growth in the rate of the productivity of labor in industry since the interwar period.

But the West still held a significant edge in aggregate production and the agrarian sector. As table 1.2 demonstrates, Gosplan determined that capitalist countries still accounted for two-thirds of the world's aggregate industrial production in 1957. During the late 1950s, the rate of growth of animal products in the Soviet Union was decidedly faster than in the United States though, by 1957, the former had indeed surpassed the latter in the production of potatoes, sugar beets, and butter.[34] The Soviet Union, however, lagged far behind in total production of animal products, as table 1.3 shows.

As its economy boomed, the Soviet Union experienced the culmination of a decades-long demographic and social revolution. These transformations – economic, demographic, and social – were inextricably linked. In the 1920s, the Soviet Union was

[33] Michael Foot, *Aneurin Bevan: A Biography* vol. II: 1945-1960 (New York: Atheneum, 1963-1974), 646; Allen W. Dulles, "Statement" in *Comparisons of the United States and Soviet Economies: Hearings before the Joint Economic Committee Congress of the United States* (Washington, DC: Government Printing Office, 1960), 11; Abram Bergson, *The Real National Income of Soviet Russia* (Cambridge, MA: Harvard University Press, 1961), 297-298.
[34] Alekseev, et. al., *Ekonomicheskoe sorevnovanie mezhdu SSSR i SShA*, 96, 100.

Table 1.3
Per Capita Production of Important Animal Products (in kilograms)

Product	1937		1950		1953		1956		1957	
	USSR	USA	USSR	USA	USSR	USA	USSR	USA	USSR	USA
Meat	17.8	71	26.8	90	30.5	94	32.8	103	36	97
Milk	157	368	195	351	191	342	245	339	268	335
Butter	1.8	7.4	2.6	4.9	2.6	4.6	3.4	4.2	3.7	4.1
Wool	0.6	1.6	1.0	0.8	1.2	0.9	1.3	0.8	1.4	0.8

Source: Alekseev, et. al., *Ekonomicheskoe sorevnovanie mezhdu SSSR i SShA*, 99.

an overwhelmingly agrarian country. According to the Central Statistical Administration (TsSU), in 1926, 82 percent of the 147,000,000 people in the Soviet Union lived in the countryside. As is typical for a developing economy, there were few technical experts. In 1928, the total number of people with higher or secondary specialized education was just over half a million.[35] Machinists, electricians, and welders, all crucial to industrial economies, were in short supply if available at all. Women were underrepresented in industrial labor, representing just twenty-four percent – the equivalent of almost 2,800,000 people – of all workers in that sector.[36] From the inauguration of the Stalin period in the late 1920s, the Soviet strategy for growth can be explained by what developmental economists refer to as a "labor surplus" model of development.[37] That is to say, from 1928 until the 1950s, the Soviet economy grew in large part as a result of the continuous expansion of inputs – here, the mobilization of unemployed or

[35] *Narodnoe khoziaistvo SSSR v 1958 godu*, 9, 673. Higher education included universities, colleges, and special institutes. Secondary specialized education refers to a type of schooling that combined both general and technical training. These students were generally eligible to proceed into higher education. The range of specialization varied widely from clerical work to chemical engineering. See Nigel Grant, *Soviet Education* (Baltimore: Penguin, 1968 [1964]), 85-86, 112-118.
[36] *Trud v SSSR: Statisticheskii sbornik* (Moscow: TsSU, 1968), 177, 73.
[37] W. A. Lewis published the classic articulations of the theory of labor surplus economies – also known as "Lewis-type" or "dual-sector" model – in the 1950s. See W. A. Lewis, "Economic Development with Unlimited Supplies of Labour," *Manchester School* 22 (May 1954): 139-191; W. A. Lewis, "Unlimited Labour: Further Notes," *Manchester School* 26 (Jan. 1958): 1-32.

underemployed labor from the countryside to perform typically low-skilled, labor-intensive tasks in industrial centers – to increase production.[38] Economists sometimes refer to this sort of development as extensive growth.[39]

Thirty years later, the Soviet Union was a different country.[40] By 1962, it had at last become urbanized.[41] In the Soviet Union, urbanization and industrialization went hand-in-hand, so, as the cities grew more populated and production processes more complex, the number of trained workers increased.[42] In 1957, the Soviet Union graduated eighty-three engineers per 1,000 people, as compared with thirty-one in the United States.[43] And by 1961 the number of technical experts had increased by a factor of eighteen.[44] Women entered the industrial sphere in droves; by 1956 there were over 23,000,000 women working in industry, representing forty-five percent of that workforce.[45] Though it was substantial, migration from the countryside to the cities was not the only cause of the demographic transformation. A decline in population growth also contributed. The Great Patriotic War annihilated the Soviet Union. During the

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[38] Robert C. Allen, *From Farm to Factory: A Reinterpretation of the Soviet Industrial Revolution* (Princeton: Princeton University Press, 2005), 190.
[39] See, for example, Michel Aglietta, *A Theory of Capitalist Regulation: The US Experience* (London: Verso, 1979); Robert Boyer, "Technical Change and the Theory of "Regulation,"" *CERPREMAP Papers* 8707 (March 1987).
[40] The crucial decade in the social transformation of the Soviet Union is the 1930s. See Moshe Lewin, *The Making of the Soviet System: Essays in the Social History of Interwar Russia* (New York: The New Press, 1994 [1985]).
[41] *SSSR v tsifrakh v 1961 godu: Kratkii statisticheskii sbornik* (Moscow: Gosstatizdat, 1962), 29.
[42] While urbanization and industrialization are often related phenomenon, as one article has recently shown it would be unwise to assume a one-to-one relationship between the two. See Douglas Gollin, Remi Jedwab, and Dietrich Vollrath, "Urbanization with and without Industrialization," *Journal of Economic Growth* 21, 1 (March 2016): 35-70. In the USSR, however, industry was always located disproportionately in the cities. See, for example, *Trud v SSSR*, 38.
[43] Alekseev, et. al., *Ekonomicheskoe sorevnovanie mezhdu SSSR i SShA*, 162.
[44] *SSSR v tsifrakh v 1961 godu*, 315.
[45] *Trud v SSSR*, 73.

fighting, between twenty-six and twenty-seven million people died.[46] The war was not followed by a significant increase in the crude birth rate (number of children born per 1,000 people). In fact, in the postwar period, this metric plateaued well short of imperial or interwar levels. The population nevertheless continued to grow. The principal change was a dramatic decrease in infant mortality. If, during the imperial period, over twenty-seven percent of all children born per 1,000 people perished before their first birthday, then by 1958 that total was just over four percent.[47] But as urbanization continued and the labor surplus evaporated, from the mid-twentieth century the Soviet Union embarked on the evolution to an intensive growth model, or emphasis on the increase of productivity per input. By the late-1950s, then, the party-state faced a serious quandary: how to improve industrial and agrarian production without the benefit of a mass of underemployed workers or a growing population?

The chemical industry seemed to present at least a partial remedy. Business historians and economists, most of them focused on nineteenth- and twentieth-century Western Europe and the United States, have established certain broad generalizations about chemical production. Collectively, these scholars portray the chemical industry as a capital-intensive industry characterized at the factory level by interconnected production processes and hazardous work.[48] Written by Semen Pogostin, a specialist in the

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[46] Michael Ellman and S. Maksudov, "Soviet Deaths in the Great Patriotic War: A Note," *Europe-Asia Studies* 46, 4 (January 1994): 671-680.

[47] Some scholars speculate that one of the main causes for the drop in infant mortality in the Soviet Union was the introduction of numerous medical advances – in particular the use of penicillin – after the war. See Ellen Jones and Fred W. Gupp, "Infant Mortality Trends in the Soviet Union," *Population and Development Review* 9, 2 (June 1983): 213-246. Here, 216-217.

[48] L. F. Haber, *The Chemical Industry during the Nineteenth Century: A Study of the Economic Aspect of Applied Chemistry in Europe and North America* (Oxford: The Clarendon Press, 1958), 231-251; L. F. Haber, *The Chemical Industry, 1900-1930: International Growth and Technological Change* (Oxford: The Clarendon Press, 1971), 376-403; Craig D. Patton, *Flammable Material: German Chemical Workers in*

economics of the chemical industry, the technical training manual *Economics and the Organization of Chemical Production* (1960) suggests that the Soviet chemical industry

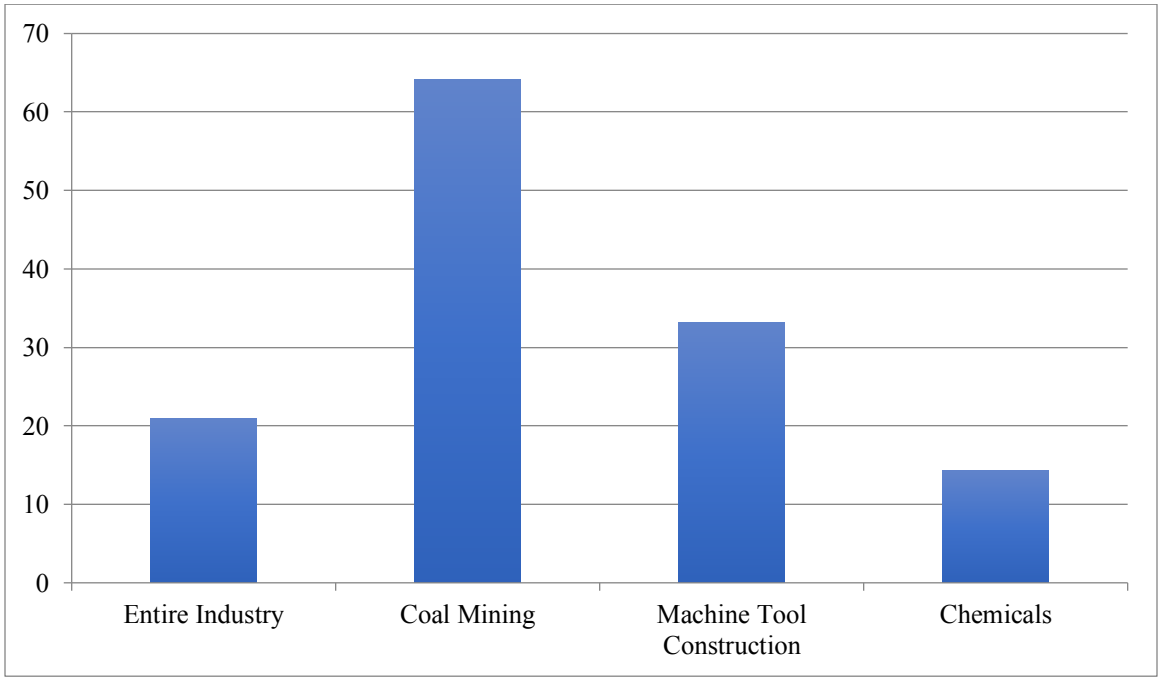

Figure 1.4
Labor Expenditure in Industrial Production in Key Branches in 1955 (by percentage)
Source: S. Z. Pogostin, *Ekonomika i organizatsiia khimicheskogo proizvodstva* (Moscow: Gosudarstvennoe nauchno-tekhnicheskoe izdatel'stvo khimicheskoi literatury, 1960), 240.

was no different. As figure 1.3 shows, the price of labor accounted for a fraction of a Soviet chemical factory's budget. Pogostin calculated that, in 1955, just fourteen percent of expenditure in the chemical industry went towards paying workers.

Enthusiasm for the potential advantages of chemical production was common among contemporary Soviet industrial and political leaders. Officials such as future

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War, Revolution, and Inflation, 1914-1924 (Berlin: Haude & Spener, 1998); Alfred D. Chandler, Jr. *Shaping the Industrial Century: The Remarkable Story of the Evolution of the Modern Chemical and Pharmaceutical Industries* (Cambridge, MA: Harvard University Press, 2005); Eli Rubin, *Synthetic Socialism: Plastics & Dictatorship in the German Democratic Republic* (Chapel Hill: University of North Carolina Press, 2008); Jennifer Tucker, "Dangerous Exposures: Visualizing Work and Waste in the Victorian Chemical Trades," *International Labor and Working-Class History* 95 (Nov. 2018): 130-165.

Prime Minister Alexei Kosygin and I. I. Kuz'min, the Gosplan Chairman, had voiced their support.[49] But Khrushchev was the industry's strongest proponent. The party leader, who had worked in a Belgian-owned chemical plant before the revolution, most forcefully articulated the benefits of expanding the production of chemicals at the May 1958 CPSU plenum.[50] Competition with the West was not far from his mind. While boasting that the Soviet economy was then growing more rapidly than the (US) American, Khrushchev bemoaned the fact that the Soviet Union still lagged behind in several key indicators. An increase in chemical production, he hypothesized, would bridge the divide. With recent advances in science and technology – in particular the development of a nuclear bomb in 1949 and the successful launch of Sputnik 1 in 1957 – Khrushchev had reason to believe the Soviet Union possessed the necessary human and natural resources to master chemical production.[51] By replacing metals with high-quality synthetic materials produced by the chemical industry, Khrushchev explained, the Soviet Union could make more efficient use of resources without sacrificing durability or performance. Moreover, chemicals would provide materials used in the production of insulation and upholstery for housing construction. Various chemical fibers could boost the production of shoes, socks, and other forms of clothing. "It would be difficult to name an industry," Khrushchev remarked, "that could not use some synthetic materials."

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[49] Alexei Kosygin, "K novym uspekham Sovetskoi ekonomiki," in *A. N. Kosygin: K velikoi tseli*, 2 vols. (Moscow: Politizdat, 1979), 2: 89-97. Here, 90; "Doklad Zamestitelia Presdsedatelia Soveta Ministrov SSSR, Predsedatelia Gosplana SSSR deputata I. I. Kuz'mina," *Pravda* 20 Dec. 1957, 2-4.
[50] N. S. Khrushchev, "Speech of N. S. Khrushchev at Luncheon held at the Twentieth Century-Fox Studious," in *Khrushchev Speaks: Selected Speeches, Articles, and Press Conferences, 1949-1961*, ed. T. P. Whitney (Ann Arbor: University of Michigan Press, 1963), 321-330. Here, 322.
[51] For analysis of the Soviet nuclear program see Paul R. Josephson, *Red Atom: Russia's Nuclear Power Program from Stalin to Today* (New York: W. H. Freeman, 2000). On Sputnik see Asif A. Siddiqi, *Sputnik and the Soviet Space Challenge* (Gainesville: University of Florida Press, 2003).

In the agrarian sector, he continued, the CPSU was well on its way to accomplishing its goals. But industry's overreliance on raw food materials hindered meat production. In 1957 alone, the equivalent of 1.7 million tons of grain was used to produce ethyl alcohol, a component in synthetic rubber. If the CPSU used the Soviet Union's enormous oil and natural gas reserves instead of raw food materials in the process, then the latter could instead feed cattle. The result, Khrushchev concluded, could be as much as 350,000 tons of additional meat. At the same time, chemical production could directly support agriculture by producing items such as fertilizers. The exploitation of natural resources was no less important in this endeavor. Khrushchev explained that plants that used natural gas, as opposed to coking coal, in the production of nitrogen fertilizers could potentially save hundreds of millions of rubles in production.[52]

Khrushchev's declarations anticipated massive investment in the chemical industry. In 1959, the sixth Five Year Plan (1956-1958) was aborted and replaced by a Seven Year Plan (1959-1965), an oddity in the history of Soviet planning.[53] According to Alec Nove, this decision was motivated in part by Khrushchev's personal commitment to growing the chemical industry.[54] The plan called for a 500 percent increase of capital investment in the chemical industry while tripling the total volume of chemical

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[52] "Ob uskorenii razvitiia khimicheskoi promyshlennosti i osobenno proizvodstva sinteticheskikh materialov i izdelii iz nikh dlia udovletvoreniia potrebnostei naseleniia i nuzhd narodnogo khoziaistva," *Pravda* 10 May 1958, 1-4.

[53] For an economic analysis of the seven-year plan see Alec Nove, *The Soviet Seven Year Plan: A Study of Economic Progress and Potential in the USSR* (London: Phoenix, 1960).

[54] Alec Nove, *An Economic History of the USSR, 1917-1991* (New York: Penguin, 1992 [1969]), 362-364.

There was also the matter of ambition – specifically, too much of it – in the sixth Five Year Plan. As the famed Russian economist G. I. Khanin has argued, the sixth Five Year Plan was so ambitious that it "had no chance of being implemented in its entirety." Taken together, the emphasis on science and technology in this plan alone would have constituted, in his words, a "second industrialization." See G. I. Khanin, "1950s: The Triumph of the Soviet Economy," *Europe-Asia Studies* 55, 8 (Dec. 2003): 1187-1221. Here, 1195.

production over the previous six years. One hundred new chemical plants were to be erected and another 130 were scheduled to be refabricated. The Seven Year Plan aimed to significantly grow the output of plastics, synthetic materials, and mineral fertilizers while improving the technology used in production. Automation and mechanization, in turn, would contribute to fewer demands on human beings, specifically by aiding the process of shortening the workday to six or seven hours. The plan also proposed to commit the industry to utilizing an abundant, and cheap, raw material base – natural and refined gases – for chemical production.[55]

From there, Khrushchev's commitment to the chemical industry only deepened. The plenary session that followed the Twenty-second Party Congress in November 1962 is famous for Khrushchev's decision to split the party on the regional level according to what he called the "production principle." In short, he suggested the formation of two separate party institutions, one overseeing capital- and the other consumer-goods production. But the plenum is also noteworthy for Khrushchev's analysis of the evolution of Soviet industry. Since the early twentieth century, metalwork and metalworkers had represented crucial elements of the Soviet system. Both were significant factors in the revolution;[56] and under Stalin they had been important components of interwar and postwar culture.[57] Noting the advances of Soviet industry since the revolution, however,

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[55] "Doklad tov. Khrushcheva," *Pravda* 28 January 1959, 2-10. Here, 3.
[56] This was especially the case in Petrograd. See S. A. Smith, *Red Petrograd: Revolution in the Factories, 1917-1918* (Cambridge: Cambridge University Press, 1983). But even in Moscow, where less than ten percent of Russia's metalworkers were employed, this section of the working class was especially politically engaged. See Diane Koenker, *Moscow Workers and the 1917 Revolution* (Princeton: Princeton University Press, 1981), 22, 298.
[57] For the interwar period see Nikolai Ostrovskii, *How the Steel was Tempered: A Novel in Two Parts*, trans. R. Prokofieva (Moscow: Foreign Languages Publishing House, 1952 [originally published in the 1930s]). For the postwar period see V. Popov, *Steel and Slag: A Novel*, trans. Helen Altschuler (Moscow:

Khrushchev appeared willing to embrace a new vision centered not on metals but rather on chemicals. At the plenum, he remarked that:

> There was a time when the might of a state was determined by the amount of metal it produced. For its time this criterion was correct. But now, when other materials have been created that compete with metal, this criterion is no longer adequate. It is chemistry that provides cheaper, more durable and more readily available materials…If we were only to meet the plan for steel but were to overfulfill it for polyethylene, we would be doing better and would be considerably better off.[58]

A popular political slogan of the time, first expressed by Khrushchev himself in December 1963, succinctly summarized the importance the CPSU then placed on chemical production: "communism is Soviet power plus the electrification of the entire country plus the chemicalization (*khimizatsiia*) of the people's economy."[59]

The industry flourished. According to L. A. Kostandov, the Chairman of the Ministry of the Chemical Industry of the USSR from 1965 to 1980, during the Seven Year Plan the Soviet Union invested over nine billion rubles in the development of the chemical industry, more than double the total allotted to that industry between 1917 and 1958. As a result, over 500 new chemical enterprises and shops began operations; the production of several thousand new chemical materials was born; and aggregate production in the industry increased by a factor of 2.5. The production of fertilizers alone

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Foreign Languages Publishing House, 1951). In part thanks to *Steel and Slag*, Popov won the Stalin Prize in Literature in 1948.

The importance of the steel industry to the Soviet economy and to Soviet culture is a topic stressed in the oeuvre of Stephen Kotkin. See Stephen Kotkin, *Magnetic Mountain: Stalinism as Civilization* (Berkeley: University of California Press, 1997 [1995]) and Stepen Kotkin, *Steeltown, USSR: Soviet Society in the Gorbachev Era* (Berkeley: University of California Press, 1991).

[58] "Doklad tov. N. S. Khrushcheva," *Pravda* 20 November 1962, 1-8. Here, 4.

[59] "Doklad tov. Khrushcheva," *Pravda* 9 December 1963, 1-6. Here, 2. The new slogan was an extension of Vladimir Lenin's famous slogan "communism is Soviet power plus the electrification of the entire country." For analysis of Lenin's quote see Katerina Clark: *The Soviet Novel: History as Ritual* (Bloomington: Indiana University Press, 2000 [1981]), 93-113.

increased over four times, bringing with it the large-scale production of materials such as urea and sulfuric acid. Technical practices had also evolved. To take but one example, by the mid-1960s clean-burning natural gas, rather than coal, served as the primary basis for the production of ammonia.[60]

But failure to coordinate with other industries lessened the impact of the investment. In a memorandum delivered to the Council of Ministers, the economist A. I. Kats showed that the inability to ensure adequate supply of raw materials to chemical producers resulted in a precipitous fall in output per unit of fixed assets in the industry during the early 1960s. Kats nevertheless agreed that chemicalization efforts represented

Table 1.4
Change in Output per Unit of Production of Fixed Assets in Chemical Industry

1953	1955	1959	1960	1961	1962	1963
100	110.3	104.7	100.4	98.9	94.7	85.9

Source: *Gosdarstvennyi arkhiv Rossiisskoi Federatsii* (GARF) *fond* (f.) 5446, *opis'* (op.) 99, *delo* (d.) 11, ll.156-157. "Change in the Output of Products per unit of Fixed Assets for Major Industries (in comparable prices)." (The memorandum is undated. It was likely delivered some time in 1964.)

a "significant turn towards the further increase of efficiency of development of all social production" in the Soviet Union.[61] Kats and Kostandov were of the same mind. Commenting on the status of socialist competition in the chemical industry in 1967, the latter boasted, with just a hint of hyperbole, that the "technical progress of the people's economy is provided by the chemical industry."[62] N. N. Nekrasov, a specialist in the economics of the chemical industry, was similarly impressed with the branch's

[60] L. A. Kostandov, "Sovetskoi khimicheskoi promyshlennosti – polveka," *Khimicheskaia promyshlennost'* 11 (Nov. 1967): 3-11 (803-811). Here, 5 (805).
[61] GARF f. 5446, op. 99, d. 11, l. 168.
[62] *Rossisskii Gosudarstvennyi arkhiv ekonomiki* (RGAE) *fond* (f.) 459 (Collection of the Ministry of the Chemical Industry), *opis'* (op.) 1, *delo* (d.) 1892, *listy* (ll.) 181 "Conditions: All-Union Socialist Competition of the Enterprise of the Ministry of the Chemical Industry of the USSR" (The memorandum is undated. It was likely completed sometime in late 1966 or early 1967.)

transformation. By 1966, he wrote, "a [whole] new structure of chemical industries"had been erected.[63]

The importance of chemical production was reflected in Soviet culture. In 1958, the film studio Mosnauchfilm began producing educational films designed to "promote chemical knowledge" in the Soviet population.[64] Newspapers, journals, and scientific literature, celebrated the power of "big chemistry" (*bol'shaia khimiia*) in their publications.[65] In the burgeoning fashion industry, chemicals provided hair stylists with the means to offer their straight-haired clients with what two authors described as "more beautiful and durable" curls.[66] The *Znanie* (*Knowledge*) Society hailed chemistry for helping to "reveal the picture of the world in which we live" and humanity's position in it, and, in doing so, confirming that in the modern world there is "no room for the fantastic inventions of religion."[67] One study revealed that chemical worker to be the most sought-after industrial profession among students.[68] In January of 1965, the Academy of Sciences began publishing *Chemistry and Life*, a popular science journal that

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[63] N. N. Nekrasov, *Ekonomika khimicheskoi promyshlennosti* (Moscow: Ekonomika, 1966), 45.
[64] "Propaganda khimicheskikh znanii," *Iskusstvo kino* 8 (1958): 110.
[65] "Big chemistry" was typically used to refer to industrial chemical production and the manufacture of synthetic materials or the era in which this type of production first became prevalent. See, for example, the collection of short articles that appear under "Bolshaia khimiia – vsenarodnoe delo!," *Pravda* 15 Dec. 1963, 1; S. Veselov, "Sbylos'!," *Ogonek* 43 (18 Oct. 1964): 14; V. A. Mezentsev, *Khimicheskaia industriia i ekonomika* (Moscow: Znanie, 1965), 3; P. T. Astashenkov, *Sovetskie raketnye: 2-e pererabotannoe i dopolnennoe izdanie* (Moscow: Voennoe izdatel'stvo Ministerstva oborony SSSR, 1967), 77; P. N. Denisov, "O nekotorykh obshchikh aspektakh izucheniia iazykov nauki," in *Sovremennye problemy terminologii v nauke i tekhnike*, ed. V. S. Kulebakin (Moscow: Nauka, 1969), 62-90. Here, 75.
[66] P. Korzh and T. Troitskaia, "Kazhdyi khochet byt' krasivym," *Ogonek* 29 (29 July 1959): 27.
On the history of the Soviet fashion industry see Virginia Carter Olmsted McGraw, "Soviet by Design: Fashion, Consumption, and International Competition during Late Socialism, 1948-1982" (PhD Dissertation: University of North Carolina – Chapel Hill, 2020).
[67] A. Kochetov, "Khimiia proviv religii," *Kommunar* 21 Feb. 1964, 3.
On the relationship between the *Znanie* society and anti-religious propaganda see James T. Andrews, "Inculcating Materialist Minds: Scientific Propaganda and Anti-Religion in the USSR During the Cold War," in *Science, Religion and Communism in Cold War Europe*, eds. Paul Betts and Stephen A. Smith (London: Palgrave Macmillan, 2016), 105-126.
[68] V. N. Shubkin, "Molodezh' vstupaet v zhizn'," *Voprosy filosofii* 5 (May 1965): 57-70. Here, 67.

covered significant events in the development of chemistry, as well as its relationship to technology, the environment, and production. Later, in May of that same year, a new annual holiday, Chemist's Day, was established to recognize the accomplishments of the chemical industry and its workers.[69]

The changes Khrushchev initiated had an almost immediate effect in Shchekino.

Figure 1.5
Distillation Columns for Methanol Production at the Shchekino Chemical Combine, 1957
Source: *Gosudarstvennyi arkhiv Tul'skoi oblasti* (GATO) *fond* (f.) P – 3986, *opis'* (op.) 7t.5, *delo* (d.) 1865, (no pagination).

Since at least 1955, the party chief had expressed his intentions to steer the Soviet Union away from overreliance on coal and towards the use of cleaner and more efficient natural

[69] "Ukaz prezidiuma ezhegodnogo prazdnika "Dnia khimika,"" *Vedomosti verkhovnogo soveta SSSR* 49 (1292) (15 Dec. 1965): 1085.

gas.[70] In this context, gasification rapidly fell out of favor and the Shchekino Gas Factory was transformed. The factory's moniker was to some extent misleading; already from the late-1950s it also produced phenol, an important material in the production of plastics, extracted from coal and sulfuric acid made from sulfuric oxide, a byproduct of gasification.[71] By the late 1950s, it was preparing for the production of formaldehyde resins, then in particular demand for use in Khrushchev's ambitious housing-construction program.[72] Construction of an ammonia shop began early the following year.[73] According to Sergei Dzhobadze, then the factory's director, the former gasification facility ultimately served as the foundation of the ammonia shop; this strategy allowed engineers and construction workers to preserve the former's communications and engineering structures, thereby saving up to forty percent on capital investments. The Shchekino Gas Factory's ammonia plant was the first in the Soviet Union to employ carbon monoxide and liquid nitrogen, as opposed to copper, to purify gas. When combined with other advances this method, Dzhobadze observed, allowed the Shchekino Gas Factory to cut expenditure on energy and materials by almost half while reducing prospective staff size by up to thirty percent.[74] The factory's production portfolio was rounded out by krypton, an element derived from liquid air and typically used in lighting and photography.[75] On 1 June 1959 the Shchekino Gas Factory took the name Shchekino Chemical Combine

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[70] Per Högselius, *Red Gas: Russia and the Origins of European Energy Dependence* (New York: Palgrave Macmillan, 2013), 13-15.
[71] "Obrashchenie," *Khimik* 8 March 1958, 2; V. Peremyshlin, "Dadim bol'she fenolov – syr'ia dlia plastmass," *Khimik* 20 May 1958, 1.
[72] G. Pavpertov, "Rezol'nye smoly – novyi vid produktsii nashego zavoda," *Khimik* 27 May 1958, 1.
[73] "Ammiachnyi tsekh – udarnaia stroika semiletki!," *Khimik* 17 Feb. 1959, 1.
[74] S. A. Dzhobadze, *Predpriiatie bol'shoi khimii* (Tula: Tul'skoe knizhnoe izdatel'stvo, 1962), 4, 6.
[75] "Za dal'neishee razvitie predpriiatiia," *Khimik* 25 November 1958, 1.

(*kombinat*), making official what had become increasingly apparent.[76] This designation

Figure 1.6
P. M. Sharov (second from left) and N. S. Khrushchev (middle) in the Urea Shop at the Shchekino Chemical Combine, 14 March 1963
Source: GATO f. 5682 (Collection of Photographs), op. 1, d. 685, ll. 15

said a great deal about both the present and the future of the enterprise. Soviet combines are best understood as, in one scholar's words, "vertically integrated multiplant complex[es]."[77] In the chemical industry, the term also signified that the facility conjoined several "technologically related functions."[78] In other words the enterprise, like the Soviet chemical industry more generally, was destined to expand.

[76] "Pereimenovanie Shchekinskogo gazovogo zavoda v Shchekinskii khimicheskii kombinat," *Khimik* 9 June 1959, 1.
[77] Alice C. Gorlin, "The Soviet Economic Associations," *Soviet Studies* 26, 1 (Jan. 1974): 3-27. Here, 5.
[78] Pogostin, *Ekonomika i organizatsiia khimicheskoi proizvodstva*, 56, 146-147, 52, 17.

And expand it did. After two years of construction and preparation, the ammonia line at last began production in November of 1961.[79] The following year, the combine further grew its capability to manufacture that chemical, while also completing the installation of the necessary equipment to produce urea, a nitrogen fertilizer used primarily to feed livestock. Dzhobadze claimed that by the end of the Seven Year Plan, the Shchekino Chemical Combine would provide the Soviet economy with eighteen different chemical products. "The chemical plant," he predicted, "will become a real industrial giant."[80]

Dzhobadze was right. By the mid-1960s, the enterprise produced sixteen percent of all of the nitrogen fertilizers produced in the Soviet Union.[81] As production expanded, the size of enterprise personnel also grew. Between 1963 and 1966 alone the number of workers at the Shchekino Chemical Combine almost doubled from 3,565 to 6,345.[82] In recognition of the development of the chemical industry in the Tula region – the Novomoskovsk Chemical Combine was undergoing a similar evolution – in March 1963 Khrushchev himself visited the Shchekino Chemical Combine. During his stay, the First Secretary met with the combine's new director, Petr Sharov, who succeeded Dzhobadze in April 1962.[83]

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[79] L. Novikov, "Ammiak poshel!," *Khimik* 5 November 1961, 2.
[80] Dzhobadze, *Predpriiatie bol'shoi khimii*, 7, 9.
[81] RGAE f. 459, op. 1, d. 49, l. 22 "Fulfillment of the Plan for the Production of Nitrogen Fertilizers for the Enterprises of the Nitrogen Industry" (undated).
[82] GATO f. 3407 (Collection of the Management of the Chemical Industry of the National Economic Council of the Priokskii Economic Region), op. 2, d. 40, ll. 102-103 "Implementation of the Personnel Plan [of the Shchekino Chemical Combine in 1963]" (undated); GATO f. R – 3469 (Collection of the Shchekino Association (*ob"edinenie*) "Azot"), op. 2, d. 397, l. 259. "Fulfillment of Labor Indicators for 1966" (18 January 1967). Reliable accounts on the number of workers at the combine prior to 1963 are hard to come by. Dzhobadze's short book, published in 1963, claims that by then "several thousand" people worked at the combine. See Dzhobadze, *Predpriiatie bol'shoi khimi*, 12.
[83] "N. S. Khrushchev na Novomoskovskom i Shchekinskom khimkombinatakh," *Khimik* 19 March 1963, 1; "Navstrechu vyboram v sovety: Petr Mikhailovich Sharov," *Khimik* 19 February 1963, 2. On the early

evolution of the Novomoskovsk Chemical Combine see S. F. Volodin, *Upravlenie effektivnost'iu truda v sovetskoi ekonomike 60-80-x gg. v.: Istoriko-sotsiologicheskii analiz* (Tula: Ros. provovaia akademiia, 2006), 70.

2: Conceptualizing Reform: The Social Scientific Categories of Late Socialism

If the "chemicalization" of the Shchekino Gas Factory better reflected contemporary Soviet political and economic goals, then it did little to address factory-level social problems. Chapter two outlines the issues enterprise leaders and workers faced at the Shchekino Chemical Combine from the late 1950s until the mid-1960s. Erratic institutional behavior and apathetic political and managerial cadres had little hope of solving the bevy of difficulties – including poor labor discipline, a crisis in work safety, and substandard urban infrastructure – faced in and around the enterprise. Far from unique to the Shchekino Chemical Combine, many of these issues haunted factories and municipalities throughout the Soviet Union. National problems required national solutions and, as the chapter demonstrates, beginning in the late 1950s, Soviet intellectuals earnestly debated new approaches to make socialism work better. Though not always for the same reasons, scholars and industrial leaders gravitated towards employing "scientific management" to steer social evolution. The ascension of management entailed empowering institutions, most importantly the State Committee of the Council of Ministers of the USSR on Questions of Labor and Wages (Goskomtrud) and the All-Union Central Council of Trade Unions to wield real influence in crafting labor policy. Simultaneously, new life was breathed into long-suffocated systems of knowledge such as economics, sociology, and the scientific organization of labor. Intellectual, political, and industrial leaders, sometimes drawing on the example of the people's republics or even the United States, began taking seriously categories and concepts – including profit, labor productivity, sales, rational labor organization, and

social structure – that, while not necessarily new, had been neglected for decades. Each was seen, at least by some, as part of an overall schema that could contribute to improved economic performance.

Petr Sharov's biography is not unlike that of many other Soviet enterprise directors of the late twentieth century. Sharov was born in 1916 into a peasant family in the village of Berezovo in the Riazan' region near the midpoint of the vast plains of central Russia. After moving to Moscow at the age of fourteen, Sharov worked for a short period in the scientific workshops of the Moscow city construction trust before undertaking an apprenticeship at the famous Sickle and Hammer metallurgical plant. From 1937 Sharov studied as a full-time student at the Donetsk Industrial Institute in the Ukrainian Republic until he was drafted into the army four years later. His service as a specialist in and instructor of the use of tank equipment in the Great Patriotic War earned him the Order of the Red Star. After at last graduating in 1946, Sharov took a position as an engineer at the Shchekino Gas Factory and became a member of the Communist Party. Sharov successfully worked his way up the ladder of enterprise leadership. By 1950 he had taken over as the factory's chief mechanic. Nearly a decade later, Sharov was appointed deputy director of capital construction. In April 1962 he took over as director of the combine where he had, by then, worked for sixteen years.[1]

Sharov inherited a less-than-ideal situation. Three months after beginning his

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[1] "Petr Mikhailovich Sharov," *Khimik* 19 February 1963, 2; "Petr Mikhailovich Sharov," *Khimik* 25 February 1967, 2; "Kapitan flagmana," *Khimik* 13 March 1969, 1.

According to one study, the typical Soviet enterprise director circa 1959 was a male Communist Party member between the ages of forty-five and fifty-nine with some sort of higher education degree. See David Granick, *Managerial Comparisons of Four Developed Countries: France, Britain, United States, and Russia* (Cambridge, MA: MIT Press, 1972), 191-198. When he succeeded Dzhobadze in 1962, Sharov was a forty-six-year-old party member with a higher education degree.

tenure as director of the Shchekino Chemical Combine, he attended a gathering of regional party committees from the Russian Republic to discuss measures to improve party leadership in industry. The critical reports Sharov heard sounded all too familiar. "The disadvantages noted at the meeting," he later wrote, "also exist in our enterprise." According to Sharov, workers at the combine had failed to take advantage of available reserves for raising the rate of labor productivity and growing aggregate output. As a result, seven months into 1962 and the combine had fallen well behind the production targets assigned to it by central planners. The performance of the ammonia shop was especially egregious. For starters, its warehouses had managed to accumulate 23,000 rubles' worth of illiquid assets. Even worse, on at least two occasions, operator error had forced unplanned shutdowns of the entire facility for emergency cleaning. Meanwhile, fines incurred for late return of containers, sloppy paperwork, and overdue receipts wreaked havoc on the enterprise's balance sheet. "The company," Sharov concluded, "is in a difficult financial situation."[2]

Sharov's report underscores an uncomfortable truth: industrial giant or otherwise, little about Shchekino or conditions at the Shchekino Chemical Combine indicated that a bright future based on chemical production was on the horizon. For one thing, political work and labor discipline were in a disastrous state. V. Peremyshlin, a supervisor in a water treatment shop that produced phenol, complained that despite numerous invitations, no member of the factory trade union committee was present at his meeting on the significance of the May 1958 plenum that vaulted chemical production to the center of

[2] "Iz doklada direktora khimkombinata P. M. Sharova," *Khimik* 4 September 1962.

Soviet political economy.[3] Likewise, a report on the activity of the enterprise's Komsomol branch noted that its gatherings were poorly attended.[4] Factory supervisors were not exactly models of reliability. It is typical for chemical plants to intermittently shut down production to conduct specialized maintenance and repair work. Peremyshlin himself failed to prepare for one such period in late summer 1958; compensating for his error required a team of workers to commit an entire workday to the hasty production of three-dozen flanges. Similarly, Cherkasov, the supervisor of the fuel-feed shop, did not properly plan for the maintenance of a crucial piece of equipment used to load coal. Measures to correct the situation were delayed because on the day of the repairs Cherkasov went to Tula "on personal business."[5]

Deep structural issues also negatively affected the plant's performance. In March 1959 A. Petrukhin, a supervisor in the department of the organization of labor and wages, published a scathing letter about labor productivity in *Khimik*, the newspaper of the party committee, factory trade union committee, and director of the Shchekino Chemical Combine. Petrukhin argued that labor productivity, the quality of production, and the wage fund all suffered in large part because workers spent only about two-thirds of their shift performing labor that corresponded to their skills category. But Petrukhin concentrated the bulk of his scorn for inefficient auxiliary (*vspomogatel'nyi*) workers – responsible for, among other things, minor equipment repair, the manufacture of spare

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[3] V. Peremyshlin, "Dadim bol'she fenolov – syr'ia dlia plastmass," *Khimik* 20 May 1958, 1.
[4] *Gosudarstvennyi arkhiv Tul'skoi oblasti* (GATO) *fond* (f.) P – 5427 (Collection of the VLKSM of the Production Association "Azot," Shchekino Area [*raion*], Tula Region), *opis'* (op.) 1, *delo* (d.) 1, *korobka* (k.) 1, *listy* (ll.) 24 "Report of the Komsomol of the Shchekino Chemical Combine Election Conference for the Period from 26 November 1958 to 19 November 1959" (undated).
[5] V. Peremyshlin, "Prirodnyi gaz kak syr'e dlia khimicheskoi promyshlennosti," *Khimik* 12 August 1958, 1.

parts, and transportation of productions – and repair workers. Due to what he called "excessive decentralization" of services, each production shop had its own repair crew in addition to the factory's main mechanical repair team. Consequently, there were too many auxiliary and repair workers – up to forty-three percent of the combine's total workforce – and the most qualified among them were spread thin throughout the combine. Petrukhin recommended the chief mechanic at the combine establish a centralized maintenance shop to handle equipment and delegate minor technical repairs to individual shops. This measure, he hypothesized, would yield significant benefits. By reducing the number of workers in these spheres by one percent, labor productivity in the plant would improve by almost one third of one percent.[6]

Factory institutions were either unable or unwilling to consistently reprimand even the most capricious workers. A comparison of the cases of three workers in the urea shop illustrates this point. In the spring of 1963, the factory trade union committee demoted Vladimir Sedykh, who had been truant without excuse three times in April, to a lower paying job for a period of two months. He responded by "insistently demanding the cancellation" of the sentence. When his requests were denied, Sedykh refused to work and went on a three-day hunger strike. Representatives from the factory party organization, the factory trade union committee, and the Komsomol visited Sedykh's apartment to persuade him to return to work; unmoved, Sedykh relented only after the Komsomol officially appealed this decision on his behalf. But the Komsomol's intervention was not quite the solution Sedykh had hoped for. Upon further review, the factory committee actually took a more severe step and terminated his employment

[6] A. Petrukhin, "Puti povysheniia proizvoditelnosti truda na zavode," *Khimik* 24 March 1959, 1.

altogether. Komsomol delegates responded by imploring the factory committee to reverse its decision. This request was successful, but soon, Sedykh had also lost the support of the former organization. That summer, the secretary of the Komsomol and the public prosecutor of the city of Shchekino reprimanded Sedykh for intimidating witnesses prepared to testify against an alleged rapist. Then, on 21 July, Sedykh arrived more than four hours late to work, again without any justification. At last, the Komsomol jettisoned Sedykh from its ranks and requested the factory committee release him from employment. This time the factory committee, on 16 August, refused the Komsomol's request and recommended Sedykh be released only in the event of another violation of labor discipline.[7] V. I. Sevast'ianov did not receive such tenacious support. After returning ill from a vacation in late 1963, doctors advised Sevast'ianov to avoid work until 12 December. Without notifying factory administrators, Sevast'ianov elected to see a medical specialist in Omsk – over 2,000 kilometers away – where he stayed for several months. Following his return to the combine on 5 March 1964, the supervisor of the shop, I. S. Sekachev, appealed to have Sevast'ianov fired. Less than three weeks later the factory committee agreed with no further discussion. Not long thereafter Sekachev had another worker, Chukhontsev, dismissed. Chukhontsev had already been expelled from the Communist Party of the Soviet Union (CPSU) for misplacing his party card. In March he also lost his job for both "gross violations" of labor discipline and drunkenly

[7] GATO f. R – 3469 (Collection of the Shchekino Association [*ob"edinenie*] "Azot"), op. 3, d. 4, s. 2, ll. 112-114 "Minutes of the Extended Meeting of the Factory Committee of the Shchekino Chemical Combine" (16 August 1963).

"pestering youth" during a public dance.[8]

Even the most conscientious workers faced serious difficulties. Production of no fewer than seven chemical substances – including sulfuric acid and ammonia, both of which were produced at the Shchekino Chemical Combine – was considered "hazardous"

Table 2.1
Wage Rates for Workers under Normal, Hazardous, and Extremely Hazardous Conditions

	Categories						
Working Conditions	I	II	III	IV	V	VI	VII
	Coefficient						
	1.0	1.14	1.30	1.49	1.71	1.98	2.3
Hourly	**Wage Rates (in Rubles and Kopecks)**						
A	15.70	17.90	20.41	23.39	26.85	31.09	36.11
B	17.80	20.29	23.14	26.52	30.44	35.24	40.94
C	21.30	24.28	27.69	31.74	36.42	42.17	49.00
Piece	**Wage Rates (in Rubles and Kopecks)**						
D	17.80	20.29	23.14	26.52	30.44	35.24	40.94
E	20.10	22.91	26.13	29.95	34.37	39.80	46.23
F	23.60	26.90	30.68	35.16	40.36	46.73	54.28

Legend:
Categories: level of training of respective groups of workers
Factors: coefficient used to determine wage discrepancies between categories of workers
A: normal working conditions
B: hazardous and difficult working conditions
C: extremely hazardous and extremely difficult working conditions
D: normal working conditions
E: hazardous and difficult working conditions
F: extremely hazardous and extremely difficult working conditions
Source: S. Z. Pogostin, *Ekonomika i organizatsiia khimicheskogo proizvodstva* (Moscow: Gosudarstvennoe nauchno-tekhnicheskoe izdatel'stvo khimicheskoi literatury, 1960), 128.

by standards established by Goskomtrud and the All-Union Central Council of Trade Unions (VTsSPS); manufacture of another four was classified as "extremely hazardous." As table 2.1 shows, workers in these shops could receive significant hazard pay. But, at least during the Seven Year Plan, workers at the Shchekino Chemical Combine had more

[8] GATO f. R – 3469, op. 3, d. 5, s. 2, ll. 49-50 "Minutes of the Meeting of the Factory Committee of the Shchekino Chemical Combine" (20 March 1964); 55-56 "Minutes of the Meeting of the Factory Committee of the Shchekino Chemical Combine" (27 March 1964).

to worry about than the inherent risk involved in handling volatile, noxious materials. At a meeting of the factory committee in May 1963 N. G. Polukhin, the committee chairman, summarized the state of technical safety in the combine as "catastrophic." Just in the first four months of that year, he attested, there had been at least thirteen different injuries at the combine that resulted in a loss of 412 hours' worth of work time per day. Polukhin acknowledged that poor labor discipline contributed to the situation, but also cited the combine's persistent problems with insufficient lighting, poorly paved roads, and supply of specialized safety clothing as evidence that workers were not entirely to blame. Petrukhin agreed, adding that while prospective workers were required to provide their measurements, this information was essentially ignored when uniforms – most typically overalls or boiler suits – were issued.[9] The following year A. A. Golub', the chairman of the shop committee of inter-workshop communication, remarked that ventilator fans, of utmost importance in chemical production for protecting workers from various diseases and infections, were "impossible" to maintain or repair because access stairs had collapsed.[10]

Ongoing complications with the medical staff only made matters worse. At another meeting of the factory committee S. S. Glebova, the head doctor at the combine, complained that doctors had been unable to study new production processes in order to provide workers with proper preventative care. The problem was that there were only two doctors on staff; in her estimation, a plant the size of the Shchekino Chemical Combine

[9] GATO f. R – 3469, op. 3, d. 4, s. 2, ll. 54-56 "Minutes of the Joint Extended Meeting of the Factory Committee of the Shchekino Chemical Combine" (24 May 1963).
[10] GATO f. R – 3469, op. 3, d. 5, s. 2, l. 65 "Minutes of the Meeting of the Factory Committee of the Shchekino Chemical Combine" (27 March 1964).

required somewhere between two and three times that total. S. E. Katkova from the sanitary epidemiological station noted that failure to clean concentrated carbon oxide in the ammonia station had a deleterious effect on workers' health. As a result, "many" workers suffered from occupational diseases after only a short time at the plant. Health problems got gradually worse throughout the early 1960s. Polukhin observed that in the first nine months of 1963, the number of disability days taken per 100 workers had increased by over forty-six percent. Tonsillitis, pulmonary tuberculosis, and acute gastrointestinal disease were especially common. L. F. Mokina, a chairman at the water treatment facility, and Katkova together blamed a rash of illness on insufficient access to clean locker rooms. V. I. Blizikin, the deputy director of the combine, doubted that the quantity of locker rooms was to blame; of those that had been installed, he asserted, many failed to satisfy even "normal sanitary conditions."[11]

Once they left the gates of the Shchekino Chemical Combine, whether at the end of a shift or the end of their careers, workers were greeted by an urban infrastructure bending under the weight of industrial expansion. Through the primary party organization of the city of Shchekino, in 1959 construction workers erected 28,000 square meters of housing, enough to satisfy the needs of 1,200 families. But this was not even sufficient to house the more than 3,000 workers at the combine. At least one worker, a party member named Struzhikhin, had a culprit in mind. "The party organizations," he complained, "have not held a single meeting [this year] to discuss how to improve the life of

[11] GATO f. R – 3469, op. 3, d. 4, s. 2, ll. 67-69 "Minutes of the Extended Meeting of the Factory Committee of the Shchekino Chemical Combine" (31 May 1963); 179-181 "Minutes of the Extended Meeting of the Factory Committee of the Shchekino Chemical Combine" (18 October 1963).

workers."[12] The city's dormitories were also in a state of disrepair. K. A. Cherniakov, the chairman of the housing and communal department of the Shchekino Chemical Combine's Komsomol branch testified that many lacked furniture, working showers, televisions, or even board games. Other dormitories were so unsanitary that, in Cherniakov's words, "it [is] impossible for residents to really live [there]."[13] Getting from one's dwelling to the combine was itself a challenge. A. Petrov, an operator at the combine, complained that buses to and from the plant were consistently unreliable.[14] Solving this problem was not only a matter of acquiring more vehicles. A 1961 article published in *Banner of Communism*, the organ of the Shchekino city committee of the Communist Party explained that transportation problems also stemmed from a chronic dearth of bus drivers.[15] Public health in the city also suffered, one participant in a meeting of the district executive committee of the Shchekino CPSU pointed out, because Shchekino lacked a fully staffed hospital.[16] I. Iashchenko, a worker in the sulfuric acid shop, connected the persistence of alcohol abuse in the city to the Komsomol's failure to complete the construction of a dancefloor and a gym. With no other options, he implied, workers simply turned to "hooliganism."[17] Children fared little better. In 1963 V. P. Sidorenko, the head of the district department of public education, informed the district

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[12] GATO f. P – 2581 (Collection of the Primary Party Organization of the Shchekino City Committee [Gorkom] of the CPSU, Tula Region), op. 1, d. 5, k. 1, ll. 6, 1-2 "Minutes of the Elective Meeting of the Primary Party Organization of the City [Shchekino] Committee of the CPSU" (4 December 1959).
[13] GATO f. P – 5427, op. 1, d. 2, k. 1. ll. 1-2 "Minutes of the Committee of the VLKSM of the Shchekino Chemical Combine" (29 November 1959).
[14] A. Petrov, "Neprigliadnaia kartina," *Khimik* 19 August 1958, 2.
[15] I. N. Maskimov, "Avtobus i raspisanie," *Znamia kommunizma* 12 February 1961, 4.
[16] GATO f. P – 2577 (Collection of the Primary Party Organization of the Shchekino District Executive Committee [*raiispolkom*] of the Tula Region), op. 1, d. 6, k. 1, l. 51 "Minutes of the Reporting and Electiong Meeteing of the Party Organization under the Shchekinsky District Executive Committee" (15 November 1960).
[17] GATO f. P – 5427, op. 1, d. 7, k. 1, l. 5 "All-Combine Komsomol Conference of Shchekino Chemical Combine" (4 October 1961).

executive committee that of the city's forty-three schools only four could provide students with hot meals. There were also, he continued, too few full-time daycare facilities to offer services for Shchekino's working parents.[18]

[18] GATO f. P – 2577, op. 1, d. 7, k. 1, ll. 25-26 "Minutes of the Reporting and Election Meeting of the Shchekino District Executive Committee for the Period between 18 October 1963 to 22 September 1964" (undated).

Figure 2.1
Brigade of Communist Labor at Shchekino Chemical Combine
Source: GATO f. 5682, op. 1, d. 277, l. 1 (1961)

Attempts to correct the enterprise's considerable troubles during the Seven Year Plan illustrate the conceptual and institutional limitations of the period. Invoked to inspire everything from vague goals such as "think[ing] creatively" while on the job to specific tasks such as mastering new production facilities, the movement for communist labor, the contemporary socialist competition campaign, remained the primary strategy employed to improve labor discipline. Time and again the movement for communist labor – whose supposed distinctive feature was its insistence on combining labor discipline with technological proficiency and education – was portrayed as a solution to production problems.[19] But as late as 1960, a full two years after the new socialist competition campaign began, one engineer could write that "[i]t is no secret that the struggle to reduce the cost of production is not yet being waged in our country."[20] This had some perverse effects. In 1963 wages at the enterprise grew faster than labor productivity. What is more, despite the aspiration to profitability, the Shchekino Chemical Combine's 1963 yearly report did not even include the metric in its financial section. The best leadership could do was remark that the enterprise owed the State Bank less on 1 January 1964 than it had owed on the same date of the previous year.[21] Fortunately for Sharov, intellectuals and

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[19] V. Morozov, "Vyshe znamia kommunisticheskogo truda," *Khimik* 28 March 1961, 1; GATO f. R – 3407 (Collection of the Management of the Chemical Industry of the National Economic Council of the Priokskii Economic Region), op. 2, d. 55, (no pagination) "Awarded Red Pennants from the Competition for Reducing Time to Master New Production Facilities" (12 February 1964).

The Movement for Communist Labor originated in 1958. See the collection of documents L. S. Rogachevskaia, N. F. Volkova, I. P. Ostapenko, et. al., *Dvizhenie za kommunisticheskii trud v promyshlennosti SSSR, 1958-1963 gg: sbornik dokumentov i materialov* (Moscow: Nauka, 1965). In fact, its goals were not new about this set of priorities. See John Scott's vivid description of combining work and higher education during the interwar period. John Scott, *Behind the Urals: An American Worker in Russia's City of Steel* (Bloomington: Indiana University Press, 1989 [1942]), 44-50.

[20] "Nashi rezervy neischerpaemy (Iz doklada glavnogo inzhenera tov. Novikova)," *Khimik* 5 January 1960, 1.

[21] GATO f. R – 3407, op. 2, d. 40, ll. 102, 132. For one example on the pursuit of profitability see "Ne uspokaivat'sia na dostignutom (Iz doklada sekretaria partkoma tov. Polikarpova)," *Khimik* 3 November 1959, 2.

industrial leaders were in the process of developing more comprehensive strategies for alleviating enterprise-level complications. But these would take some time to develop.

The "chemicalization" of the Soviet economy occurred alongside a veritable revolution in the Soviet social sciences. It is sometimes argued that Josef Stalin put an end to legitimate social scientific inquiry in the Soviet Union. These claims are exaggerated, but suggestive.[22] Limited conceptually to a dogmatic vision of dialectical materialism, the Soviet social scientists of the mid-1950s lacked the sort of consistent access to reliable raw data, to say nothing of institutions and journals, that otherwise would have prepared them to contribute to the growing emphasis on socioeconomic development.[23] But in the mid-1950s much of this changed. In 1954 *Kommunist*, the party's main theoretical journal, published an article that chastised the humanities and social sciences for failing to adequately address social issues.[24] The following year in the pages of *Problems of Philosophy*, a prestigious journal published by the Academy of Sciences, the economist Vasilii Nemchinov argued that meaningful analysis of society required quantitative analysis as much as broad theorization.[25] Nikita Khrushchev's address at the Twentieth Party Congress in 1956 lent political legitimacy to this movement by encouraging the reconsideration of Stalin-era "views...in the spheres of

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[22] On the value of Stalin-era economics see Kyung Deok Roh, *Stalin's Economic Advisors: The Varga Institute and the Making of Soviet Foreign Policy* (New York: IB Tauris, 2018). And on sociology see David Lane, "Ideology and Sociology in the USSR," *The British Journal of Sociology* 21, 1 (March 1970): 43-51; G. S. Batygin, "Preemstvennost' rossiiskoi sotsiologicheskoi traditsii," in *Sotsiologiia v Rossii* 2 vols., ed. V. A. Iadov (Moscow: Izdatel'stvo Instituta sotsiologii RAN, 1998), 2: 19-39.
[23] The first of the yearly statistical yearbook series – *Narodnoe khoziaistvo SSSR* – was not published until 1956.
[24] "Nauka i zhizn'," *Kommunist* 5 (March 1954): 3-13.
[25] V. S. Nemchinov, "Sotsiologiia i statistika," *Voprosy filosofii* 6 (1955): 19-30.

history, philosophy, economy, and of other sciences."[26]

As the preface of this dissertation demonstrated, "gross output," "fulfillment," and "labor discipline" were the chief social scientific categories of Soviet socialism during the Stalin period. But growing the economy while investing in social welfare, rather than resorting to punitive measures, required reconsidering the potential of additional metrics. Evsei Liberman, an economist then working at Khar'kov State University in the Ukrainian Republic, was central to this development. Liberman was no trailblazer. According to Abraham Katz and Vladimir Treml, many of the ideas Liberman popularized – including mathematical modeling – had been conveyed in studies published by scholars such as Nobel-prize winner L. V. Kantorovich in the Soviet Union between the 1930s and the 1950s.[27] The founding of the people's republics also helped Soviet economists such as Liberman to think more broadly about the possibilities of a socialist economy. As Brian Porter-Szűcs has recently shown, Polish Marxist social scientists, most important among them Oskar Lange and Michał Kalecki, had been hard at work developing their own intellectual tradition based on mathematical formulas and in conversation with liberal contemporaries.[28] It is not clear if Liberman read Lange or Kalecki. But one scholar who recently probed the history of Soviet economic thought has demonstrated that Lange is typically cited as a significant influence on Kantorovich and

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[26] N. S. Khrushchev, *Khrushchev Remembers*, trans. Strobe Talbott (Boston: Little, Brown and Company, 1970), 559-618.
[27] The most important figures associated with this era of scholarship include one-time head of Gosplan N. A. Voznesenski; V. S. Nemchinov; Nobel-prize winner L. V. Kantorovich; and V. V. Novozhilov. See Abraham Katz, *The Politics of Economic Reform in the Soviet Union* (New York: Praeger, 1972), 25-44; Vladimir Treml, "The Politics of 'Libermanism,'" *Soviet Studies* 19, 4 (Apr. 1968): 567-572.
[28] See Brian Porter-Szűcs, "From *Homo Sovieticus* to *Homo Economicus*: The Transformation of the Human Subject in Polish Socialist Economic Thought," *East European Politics and Societies: and Cultures* 34, 3 (August 2020): 546-570.

his generation.[29] Lange, in other words, was in the ether. But as a communicator, Liberman was unmatched. It is he whose name is most closely associated with changes in Soviet economic management, and it is he who lent his name to the term – "Libermanism" – once used to describe this collection of policies.[30] Considering Liberman's ideas is therefore necessary to understand the history of late twentieth century Soviet political economy.

In two essays published in 1955 and 1956, respectively, Liberman spelled out his vision of a reformed relationship between planning, the enterprise, and labor. In the first, published in the journal *Problems of Economics*, Liberman suggested linking bonuses to enterprise cost accounting through the creation of an incentive fund whose size would be dependent on both plan fulfillment and profit. The fund was to be periodically distributed among enterprise management, with one portion set aside – at least provisionally – for the trade unions to finance the "cultural needs" of enterprise personnel and another to subsidize bonus payments for those working in high-performance enterprises that lacked such a fund. This method, Liberman theorized, would influence managers to experiment more willingly with new technologies without fear of negative consequences. Liberman was adamant that enterprises should not shy away from releasing labor that had been rendered superfluous by new machines. "[S]hop personnel must know," he wrote, "that any innovation and reduction of nonproductive personnel will benefit both the state and

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[29] See Yakov Feygin, "Reforming the Cold War State: Economic Thought, Internationalization, and the Politics of Soviet Reform, 1955-1985" (PhD Dissertation: University of Pennsylvania, 2017), 82-84. On Lange's career see Włodzimierz Brus and Tadeusz Kowalik, *L'économie et le socialisme selon Oskar Lange* (Genève: Librarie Droz, 1970). And on Kalecki's see Jan Toporowski, *Michał Kalecki: An Intellectual Biography*, 2 vols. (New York: Palgrave Macmillan, 2013-2018).
[30] See, for example, Egon Neuberger, "Libermanism, Computopia, and Visible Hand: The Question of Informational Efficiency," *The American Economic Review* 56, ½ (March 1966): 131-144.

the shop" [by freeing them to work elsewhere]. To alleviate concerns related to the dreaded "ratchet principle," the term used to describe the practice of using achieved levels of production to guide production requirements in each subsequent plan, Liberman proposed preserving the integrity of success indicators for a minimum of one year.[31] The second work, which appeared in *Kommunist*, built on the first. But there was an important addendum. Heeding a 1955 decree that Soviet enterprises should adopt rubrics used by foreign factories, Liberman also suggested assuming new indices – labor productivity, the cost of production, and profitability – to measure enterprise performance. Liberman warned that a clear relationship between labor productivity and wages should be established. Like enterprises, workers did not exist on an island; they therefore could not expect to be the sole beneficiaries of their own labor. Production must also serve society as a whole, or else social progress would be impossible. "Labor productivity must always grow faster than average wages," Liberman wrote, "for otherwise society will not be able to create that part of the national income which is necessary for expanded reproduction and for meeting social needs."[32] The novelty of Liberman's proposals was not the attention to profit. Indeed, as Liberman never tired of explaining to both domestic and international critics, profit had been a part – albeit a small one – of the Soviet economy since the founding of the Soviet state. Rather, as George Feiwel has argued, it was profit

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[31] E. G. Liberman, "Khoziaistvennyi raschet i material'noe pooshchrenie rabotnikov promyshlennosti," *Voprosy ekonomiki* 6 (June 1955): 34-44. Here, 37. Writing in retrospect, one contemporary went as far as to argue that Liberman's ideas implied "the generation of some unemployment." See Aron J. Katsenelinboigen, *The Soviet Union: 1917-1991* (New Brunswick: Transaction Publishers 2009 [1991]), 398-399.

[32] E. G. Liberman, "O planirovanii promyshlennogo proizvodstva i material'nykh stimulakh ego razvitiia," *Kommunist* 10 (July 1956): 75-92.

as the determinant factor of a bonus fund that was truly innovative in the Soviet context.[33]

Liberman's early writings attracted little attention. According to economists Paul Gregory and Robert Stuart, Liberman remained an "obscure" academic through the end of the 1950s.[34] The winds of change, however, were strong behind him. Between the publication of Liberman's essays, at the Twentieth Party Congress in 1956 Anastas Mikoian, long-time Soviet statesman and former Minister of Foreign Trade, harshly rebuked Stalin's dogged influence on Soviet economics and encouraged serious analysis of the state of the Soviet economy.[35] Progress came quickly. As Mark Beissinger has shown, whereas in 1958 the total number of scholars involved in the practice of mathematical modeling in economic management was around a dozen, by 1961 more than forty institutes were dedicated to this endeavor.[36]

In such a climate, Liberman did not languish in obscurity for long. In August 1962, he published another article in *Problems of Economics*. Liberman now argued that enterprise leadership should only be beholden to two indices: gross output and profitability.[37] But it was his oft-cited synthetic article "The Plan, Profit, and Bonuses," that ran the following month in *Pravda*, the organ of the CPSU, which introduced his ideas to a general readership. "The Plan, Profit, and Bonuses" is noteworthy for its concise explanation of what, for Liberman, constituted profitability (*rentabel'nost'*), that

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[33] George R. Feiwel, *The Soviet Quest for Economic Efficiency: Issues, Controversies, and Reforms* (New York: Praeger, 1967), 218.
[34] Paul R. Gregory and Robert C. Stuart, *Soviet Economic Structure and Performance*, 4th ed. (New York: Harper & Row, 1990), 144.
[35] "Rech' tovarishcha A. I. Mikoiana," *Pravda* 18 February 1956, 4-6. Here, 6.
[36] Mark R. Beissinger, *Scientific Management, Socialist Discipline, and Soviet Power* (Cambridge, MA: Harvard University Press, 1988), 165-166.
[37] E. G. Liberman, "Planirovanie proizvodstva i normativy dlitel'nogo deistviia," *Voprosy ekonomiki* 8 (August 1962): 102-112.

is, the relationship, in mathematical terms, between profits and production capital (fixed and working assets). With machine technologies and labor included in the equation's denominator, enterprise management, Liberman theorized, would aim to use both more rationally. Foreseeing criticism from the liberal world, the economist rejected the idea that profits were, by definition, a capitalist concept. "Our profits, where planned prices for the products of labor exist and clear revenue is used for the benefit of society as a whole," he wrote, "is the result and at the same time the measure (in monetary terms) of the actual effectiveness of labor expenditures."[38] "Socialist profit," then, was not an inherently contradictory proposition.

Liberman received some support in the popular press.[39] He also faced criticism. M. Fedorovich of the Moscow Engineering and Economics Institute and B. Smekhov, an economist at the G. V. Plekhanov Institute of the National Economy argued that the primary determinant of bonuses on the enterprise level should be reduction of costs rather than the growth of profit.[40] M. Bor, director of the Gosplan institute of planning and norms questioned how Liberman could be sure that enterprises would not simply stop producing essential, but unprofitable, products to meet profit fulfillment.[41] B. Degtiar, an automobile design engineer, argued that Liberman paid insufficient attention to prices.[42] Everyone, it seemed, was talking economics.

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[38] E. Liberman, "Plan, pribyl', premiia," *Pravda* 9 September 1962, 3.
[39] O. Gromyko, "Glavnoe – ekonomichnost'," *Pravda* 12 October 1962, 3; V. Cherniavskii, "Rentabel'nost' i proizvoditel'nost' truda," *Pravda* 19 October 1962, 4.
[40] M. Fedorovich, "He pribyl', a snizhenie sebestoimosti – vot glavnyi pokazatel'," *Pravda* 20 September 1962, 3; V. Smekhov, "Pooshchriat' za snizhenie sebestoimosti," *Pravda* 12 October 1962, 3.
[41] "Vnutrenniaia protivorechivost' predlozhenii professora Libermana," *Ekonomicheskaia gazeta* 46 (67) 10 November 1962, 12.
[42] B. Degtiar, "O material'noi zainteresovannosti v uluchshenii kachestva produktsii," *Pravda* 11 November 1962, 3.

The discussion initiated by Liberman's writings took place simultaneously with another triggered by the aircraft designer O. Antonov. Writing in *Izvestiia*, the newspaper of the Soviet government, in November 1961 Antonov railed against the profligate tendencies exacerbated by the plan's overemphasis on gross output.[43] Months later, the same author suggested conducting experiments at different individual enterprises to determine which indices – including, for example, sales – proved most beneficial to the economy.[44] In response, some stressed the importance of developing a bonus for the implementation for new productive technologies.[45] F. Kovalenko, Director of L'vov Regional Economic Council's Light Industry Association recommended prioritizing the quality of production. "[T]he size of the funds," he wrote "ought to be responsive to the rule: Those who produce output of top quality receive more funds."[46]

Noting the "many valuable proposals" made by the participants in the ongoing economic debates, Khrushchev addressed these themes at the Twenty-second Congress of the CPSU in November 1962. The First Secretary agreed with many commentators that gross output as the central index in determining enterprise performance had a detrimental effect on the economy. "[G]ross output," he argued, "does not fully reflect the true state of affairs…and makes it disadvantageous to the enterprises to turn out cheaper and more complicated items, to fulfill the plan for the full range of goods." Khrushchev recommended conducting experiments with different indices – he was especially interested in profit – at individual factories. Answering Bor's critique while echoing

[43] O. Antonov, "Dlia vsekh i dlia sebia," *Izvestiia* 18 November 1961, 4.
[44] O. Antonov, "Davaite luchshe podschitaem!," *Izvestiia* 24 May 1962, 3.
[45] I. Klimov and B. Shelepenkov, "Staroe v put' ne berut," *Izvestiia* 28 May 1962, 3.
[46] F. Kovalenko, "Kogda vziat vysokii rubezh," *Izvestiia* 3 December 1961, 4.

Lange, whose schema allowed for national- and enterprise-level plans to diverge provided the latter ultimately served the ends of the former, Khrushchev was sure to explain how socialist profit differed from its capitalist counterpart:

> In capitalist production, profit is the aim of production, the basic incentive to its development. In the socialist economic system, the chief purpose is to satisfy the needs of society. Our industry produces goods not to obtain profit but because all of society needs these goods.

Khrushchev insisted that this did not mean that individual enterprises could disregard financial issues:

> But the individual enterprise is a different matter. In this case the question of profit carries great significance as an economic index of the effectiveness of its work. How the enterprise functions – at a loss or at a profit, eating up public funds or increasing them – is of tremendous importance. Without calculating profit, it is impossible to determine the level at which the enterprise is functioning and what contribution it is making to the public fund.

In short, while enterprises should strive for profitability, the economy as a whole was under no such obligation. For this reason, Khrushchev asserted that "one must not confuse the concepts of profit as it applies to the national economy as a whole and as it applies to the individual enterprise."

Aspiring to profitability would require factories address disappointing rates of labor productivity. Khrushchev suggested appealing to workers on an individual level. "Each person must realize," he continued, "that only a constant progressive rise in labor productivity leads to improved living standards for the people." This could be accomplished in part by careful study and improved formation of output norms. It also required addressing the problem of labor turnover, a serious obstacle toward improving labor productivity. And labor turnover– the proportion of an enterprise's workforce that

leaves over the course of a year for reasons not related to death, medical, or military service – had been on the rise. To combat this Khrushchev recommended improving social services – especially housing, child-care institutions, and medical care – to entice workers to remain at a particular factory.[47]

Talk about profit led almost inevitably to a discussion on prices.[48] Shortly after the Twenty-second Congress an article titled "Prices and Profit" written by two economists – I. Birman and V. Belkin – appeared in *Izvestiia* on precisely this topic. As it stood, the authors observed, prices did not reflect actual cost to the national economy. In large part this was because investment was rarely, if ever, considered during the process of price formation. As a result, the authors posited, enterprises that appeared to be pulling in a profit could very well be operating at a massive loss. Essentially, Birman and Belkin suggested enterprises return to the state a certain percentage of profit according to level of capital investment. What remained could be used at the discretion of the enterprise itself. As Yakov Feygin, whose recent study of the history of Soviet economic thought first explained the importance of "Prices and Profit," has astutely observed, Birman's and Belkin's article ultimately suggested replacing the turnover tax with what amounted to interest on borrowed capital.[49]

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[47] "Doklad tovarishcha N. S. Khrushcheva," *Pravda* 20 November 1962, 1-8.

Originally published in Polish in 1959, Oskar Lange's *Political Economy* first appeared in English translation in 1963. There, he writes, "[T]he category of profit is retained in socialist enterprise but ceases to be the ultimate end of its activity and becomes the means of subordination of the general social end of the plan. Profit serves as a stimulus to the completion of the planned targets and as a test of how far the economic principle is observed." Oskar Lange, *Political Economy*, trans. by A. H. Walker (New York: Permagon, 1963 [1959]), 177-182. Here, 178.

[48] Soviet price formation awaits its historian. Some noteworthy early efforts include John M. Kramer, "Prices and the Conservation of Natural Resources in the Soviet Union," *Soviet Studies* 24, 3 (Jan. 1973): 364-373; N. V. Kuznetsova, "Snizhenie roznichnykh tsen i material'nyi uroven' zhizni naseleniia SSSR v 1946-1952 godakh," *Vestnik VolGU* 13, 1 (2008): 32-42.

[49] I. Burman and V. Belin, "Tsena i pribyli," *Izvestiia* 28 November 1962, 3; Feygin, "Reforming the Cold War State," 135-136.

In the fall of 1963, the academician V. Trapeznikov entered into the debates. Like Kovalenko, Trapeznikov rejected the idea that an enterprise's contribution to the national economy could be determined by quantitative metrics alone. Quality, in this case, had thus far been entirely ignored by Soviet economists and planners. In an editorial published in *Pravda*, Trapeznikov suggested creating a rubric such as "effective unit" or "effective ton" whose basis would be a "quality coefficient" that would allow enterprises that produced better, even if fewer, goods to nevertheless fulfill their plan.[50] The following year, in a decidedly more well-known article, Trapeznikov turned his attention towards management. Trapeznikov was convinced that at least some of the enterprise-level inefficiencies that characterized production in the Soviet Union was a result of hamstrung administration. Tied to the dictates of central planners, directors were given virtually no independent control over production. To make matters worse, many of the orders handed down to them were based on year-old data that no longer corresponded to reality. Production quality suffered as a result. But enterprises had little incentive to take the necessary steps to improve the standards of production – such as experimenting with new machines – since doing so might compromise plan fulfillment. The needs of the national economy and the enterprise, Trapeznikov determined, were not in sync. As Feygin points out, Trapeznikov's solution borrowed from Liberman in its emphasis on profit and from Birman and Bilken in its push for a tax on capital. Citing the (US) American example as a model, Trapeznikov advocated giving more power to the enterprise director and using various economic levers such as incentives (for good

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For a discussion of the turnover tax see the introduction to this dissertation.

[50] V. Trapeznikov, "Kriterii – kachestvo!," *Pravda* 20 October 1963, 4.

performance); taxes (on capital); penalties (for late or substandard delivery of orders); and flexible prices (for new and costly products) to lower cost and boost profit. Trapeznikov referred to this system of priorities as "flexible economic management."[51]

Trapeznikov's contribution received a number of responses. Among them, two are especially noteworthy.[52] O. Volkov, an accountant at an automobile plant in Moscow, also saw the lack of emphasis on the quality of production as a major impediment to improved economic activity in the Soviet Union. And, like Liberman, Khrushchev, and Trapeznikov, Volkov thought profit was the solution. But the latter stated his position rather extraordinary terms:

> It is known that in capitalist society the assortment, quality, and quantity of output is controlled by the market. Cannot this instrument also be used in our socialist economy? After all, a market, where the process of purchase and sale and the transfer of property from one legal person to another is accomplished, does exist even under socialism.

This was provocative language from someone so deep within a system that, at least according to most historians, eschewed the market entirely. The characteristic that separated what, for Volkov, constituted a "socialist market" from its capitalist counterpart was clear. While the former was "organized" and "directly planned," the latter was "based on competition." This was an advantage that industrial leaders in the Soviet Union would do well to exploit. They could do

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[51] V. Trapeznikov, "Za gibkoe ekonomicheskoe upravlenie predpriiatiiami," *Pravda* 17 August 1964, 3-4. The article was significant enough that it was published in translation in at least one English-language journal. See V. Trapeznikov, "For Flexible Economic Management of Enterprises," *The Soviet Review* 6, 1 (April 1965): 3-8; Feygin, "Reforming the Cold War State," 148-150.

[52] For a third see G. Kulagin, "Ob operativnoi samostoiatel'nosti predpriiatiia," *Pravda* 15 September 1964, 2.

so, Volkov concluded, by granting enterprise directors more autonomy over decision making, but especially in price formation.[53]

The second, titled "Once More on the Plan, Profit, and Bonuses" and published in *Pravda*, was written by Liberman himself. Though he conceded that it ought to be seen as but one of several metrics used to gauge enterprise performance, Liberman nonetheless continued to stress the potential benefits of profit and profitability. Worried that too great an emphasis on gross profit would benefit large enterprises to the detriment of their smaller counterparts, Liberman advocated shifting priority toward profitability. He anticipated this would lead to additional economic benefits. As management and workers came to perceive profitability as the source of incentive payments, they would strive to produce higher quality goods to ensure sales targets were met. Understood as such, Liberman referred to profitability as a "point of convergence for all…qualitative indicators."[54]

As economics was revitalized, sociology was not far behind. In 1956, Soviet scholars took part in the Third World Congress of Sociology;[55] the Soviet Sociological Association was formed in 1958;[56] and by 1960, *Komsomol'skaia pravda*, the newspaper of the Komsomol, began publishing public opinion polls for the first time.[57] Throughout the late twentieth century Soviet social researchers aided the party in the task of

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[53] O. Volkov, "Nazrevshie voprosy," *Pravda* 23 August 1964, 2.
[54] E. Liberman, "Eshche raz o plane, pribyli i premii," *Pravda* 20 September 1964, 3.
[55] "Chto pokazal mezhdunarodnyi kogress sotsiologov," *Pravda* 19 October 1956, 4.
[56] *Sotsiologiia i vlast', 1953-1968: Sbornik i dokumenty* (Moscow: Academia, 1997), 36-44.
[57] For an index of public opinion polls published in *Komsomol'skaia pravda* see Elizabeth A. Weinberg, *Sociology in the Soviet Union and Beyond: Social Enquiry and Social Change* (Burlington: Ashgate, 2004 [1974]), 159-170.

managing Soviet society. As such, empirical study of the social structure and labor productivity were central concerns for Soviet social scientists. What some found was that society did not resemble the "two classes and a stratum" formula – encompassing the working class, peasantry, and intelligentsia – first explicated by Josef Stalin in 1936 to describe what were then the essential features of Soviet socialism. Scholars such as V. S. Semenov and S. A. Kugel' began speculating that since the interwar period Soviet society had transformed into a much more complex formation. Social scientists who had conducted some empirical work confirmed their intuition. To take but one example, between 1962 and 1967 the historian-turned-sociologist O. I. Shkaratan challenged Stalin's description of Soviet society. Basing his arguments on interviews as well as documentary evidence and questionnaires, Shkaratan argued that Soviet society was better understood as a variegated body characterized by intra-class *sloi*, meaning "strata" or "layer." He was not alone. Multiple social scientists working on various aspects of Soviet society used "strata" to came to similar conclusions.[58]

As in the United States and the United Kingdom, industrial sociology in the Soviet Union blossomed in the mid-twentieth century.[59] This brought to light the complexity of the lives of Soviet workers and the shape of Soviet society. Some scholars testified to the importance of the family unit. In his research, V. Olshanskii found that

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[58] James Allen Nealy, Jr., "Ovsei Shkaratan and the Soviet Social Structure after Stalin," *Kritika* (forthcoming, Winter 2022).

[59] Classic contemporary works include D. C. Miller and W. H. Form, *Industrial Sociology: An Introduction to the Sociology of Work Relations* (New York: Harper & Row, 1951); Clark Kerr, John T. Dunlop, Frederick Harbison, and Charles A. Myers, *Industrialism and Industrial Man* (Cambridge: Harvard University Press, 1960); Ferdynand Zweig, *The Worker in an Affluent Society* (New York: Free Press of Glencoe, 1961); Robert Blauner, *Alienation and Freedom: The Factory Worker and His Industry* (Chicago: University of Chicago Press, 1964); Harry Braverman, *Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century* (New York: Monthly Review Press, 1998 [1974]).

orphaned or abandoned children tended to perform poorly in school and later in life become unreliable workers.[60] Other researchers discovered that, the improved wage structure notwithstanding, fewer than half of workers were satisfied with their job. For A. G. Zdravomyslov and V. A. Iadov, this was a consequence of a lack of "moral motives" – essentially, though they did not say it, alienation in the Marxist sense – among Soviet workers. In accordance with contemporary Soviet psychological research, the authors posited that this particular problem had a direct bearing on an individual's work performance.[61] In a study of workers in Novosibirsk in the early 1960s, V. N. Shubkin determined that education also played a part in the rate of labor productivity. The issue was not just too little education but also too much of it. Shubkin speculated that labor productivity suffered in part because often students were educated for jobs that Soviet society simply could not yet offer; even after deciding on a career path and completing an education, these young workers frequently had to be retrained.[62]

Arguably the political centerpiece of Khrushchev's tenure as party leader, the 1961 (third) CPSU program seemed to acknowledge the complex social formation that sociologists observed. Edited by the First Secretary himself and adopted at the Twenty-second Party Congress, the program famously predicted that communism would be established in the Soviet Union by 1980. Just as important, the program declared that, having ensured the victory of socialism, the dictatorship of the proletariat, the stage of Soviet sociopolitical development since 1917, had "fulfilled its historic mission," thereby

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[60] V. Olshanskii, "Opirat'sia na konkretno sotsiologicheskie issledovaniia: Zametki sotsiologa," *Partiinaia zhizn'* 15 (August 1963): 55-61.
[61] A. G. Zdravomyslov and V. A. Iadov, "Opyt konkretnogo issledovaniia otnosheniia k trudu," *Voprosy filosofii* 4 (April 1964): 72-84.
[62] V. N. Shubkin, "Molodezh' vstupaet v zhizn'," *Voprosy filosofii* 5 (May 1965): 57-70.

paving the way for the formation of the contemporary, apparently more inclusive, political order – what the document described as a "state of the entire people."[63] Still, the inauguration of the "state of the entire people" did not bespeak an abandonment of the working class as an important political symbol. The 1961 Program declared that the working class still performed "a leading role" in the future of Soviet society.[64] Nor did Khrushchev's program represent a radical break in the evolution of Soviet society. More than anything, it was a recognition of what had occurred over the previous three decades. As Anna Krylova has demonstrated, already by the 1930s an "epistemic shift" was underway in the Soviet press and pedagogical sciences that downplayed emphasis on the "proletariat" and accommodated various individualizing discourses.[65]

Simultaneously, another set of industrial leaders was working on the problem of labor organization. This venture began almost immediately after the formation of Goskomtrud in 1955. Founded in January 1956 *Socialist Labor*, Goskomtrud's monthly journal, advocated workers take the initiative to combine professions. Lewis Siegelbaum's classic study of the Stakhanovite movement has shown that it was not uncommon for exceptional workers to take up additional tasks during the interwar period.[66] This tendency continued during the Great Patriotic War.[67] But in the quest for efficiency, the practice was more generalized. In planning to combine the work of fifty-eight radio nodes with that of other office and agencies, communications workers in

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[63] Anna Krylova, "Imagining Socialism in the Soviet Century," *Social History* 42, 3 (July 2017): 315-341.
[64] "Programma Kommunisticheskoi Partii Sovetskogo Soiuza," *Pravda* 2 November 1961, 1-9; William Taubman, *Khrushchev: The Man and His Era* (New York: WW Norton, 2003), 509-511.
[65] Krylova, "Imagining Socialism in the Soviet Century."
[66] Lewis H. Siegelbaum, *Stakhanovism and the Politics of Productivity in the USSR, 1935-1941* (New York: Cambridge University Press, 1988), 146-147.
[67] G. A. Prudenskii, A. P. Stepanov, and B. I. Eidel'man, *Voprosy truda v SSSR* (Moscow: Politizdat, 1958), 260.

Sverdlovsk estimated that they could economize 1,455 square meters' of production space and, "free up" (*vysvobodit'*), a euphemism for "lay off," a "significant number of workers."[68] Closer to Shchekino, in the mines of the Moscow Coal Basin, the combining of four professions into one resulted in a 15.5 percent increase in labor productivity.[69] Similar decisions were made, with varying results, in flywheel stations,[70] construction,[71] and river transport, just to name a few.[72] By the mid-1960s the combining of professions was so widespread that Goskomtrud issued decrees to regulate its spread among selected professions.[73]

But it was the rebirth of the Scientific Organization of Labor (NOT) that emerged as the most significant development in the reorganization of labor. NOT, a system of "scientific management" designed to rationalize the labor process, had a rich tradition in the Soviet Union. Though its roots were traceable to the legendary "worker poet" and head of the interwar Central Labor Institute Alexei Gastev, scholars such as Kendall Bailes have shown that NOT was strongly influenced by the works of the (US) American engineers Frank and Lillian Gilbreth and Frederick Taylor as well as the business magnate Henry Ford. What the Gilbreths, Taylor, Ford, and Gastev shared was the impetus to study work and to employ technology to disaggregate the labor process so as to allow virtually any worker to contribute to high-speed, mass production through

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[68] M. Vlasov, "Smelee razvivat' sovmeshchenie professii," *Sotsialisticheskii trud* 1 (Jan. 1956): 79-80.
[69] A. Minevich, "Sovmeshchenie professii na skhakhtakh Mosbassa," *Sotsialisticheskii trud* 4 (April 1956): 92-95.
[70] M. Smirnov, "Sovmeshchenie professii v mashinodorozhnykh stantsiiakh," *Sotsialisticheskii trud* 4 (April 1957): 125-126.
[71] P. Mel'nik, "Nash opyt sovmeshcheniia professii," *Sotsialisticheskii trud* 7 (July 1957): 132.
[72] V. Iakovlev, "Sovmeshchenie professii na rechnom transporte," Sotsialisticheskii trud 9 (September 1959): 127-128.
[73] I. N. Popov-Cherkasov, ed. *Organizatsiia zarabotnoi platy rabochikh SSSR: Sbornik normativnykh aktov* (Moscow: Economika, 1965), 314-315.

specialized training and routine tasks.[74] In short, NOT aimed to use management to match the human to the machine. Though it was an important aspect of industrial production through the 1920s, by the mid-1930s NOT had fallen out of favor; essentially, it was replaced by socialist competition campaigns that prioritized gross output over rationalization. But in the new conditions its influence was rehabilitated. In August 1958 a conference on NOT was held in Sverdlovsk. Attended by over 400 workers, directors, economists, physiologists, doctors, and trade union representatives, presentations at the meeting discussed issues such as ensuring maximum productivity from every workstation; transitioning to a seven-hour workday; work physiology, safety, and hygiene; and the importance of physical culture and sports to the health of the working person.[75] Time-and-motion studies flourished. In an effort to locate "hidden reserves" engineers, often using photography, studied workers to develop schemes to make the labor process more rational.[76]

As the German social scientist Melanie Tatur recognized long ago, the NOT of

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[74] On Ford's influence in the Soviet Union, and elsewhere, see Stefan J. Link, *Forging Global Fordism: Nazi Germany, Soviet Russia, and the Contest Over the Industrial Order* (Princeton: Princeton University Press, 2020). On Gastev see Kendall E. Bailes, "Alexei Gastev and the Soviet Controversy over Taylorism, 1918-24," *Soviet Studies* 29, 3 (July 1977): 373-394. On the Gilbreths see Jane Lancaster, *Making Time: Lillian Moller Gilbreth, a Life Beyond "Cheaper by the Dozen"* (Boston: Northeastern Press University, 2004). On Taylorism see Robert Kanigel, *The One Best Way: Frederick Winslow Taylor and the Enigma of Efficiency* (New York: Penguin, 1997). On the legacy of scientific management see Daniel Nelson, ed. *A Mental Revolution: Scientific Management since Taylor* (Columbus: Ohio State University Press, 1992).
[75] M. Chugreeva, "Konferentsii po voprosam nauchnoi organizatsii truda," *Sotsialisticheskii trud* 3 (March 1959): 141-143.
[76] A. Leoshkin and V. Melikhov, "Fotografii rabochego dnia na Voskresenskom khimicheskoi kombinate," *Sotsialisticheskii trud* 8 (August 1958): 109-114; Sh. Kanchukh and S. Pogostin, "Dvustoronnaia fotografiia rabochego dnia v khimicheskoi proizvodstve," *Sotsialisticheskii trud* 6 (June 1959): 87-91; A. Spakh, "Rol' khronometrazha v tekhnicheskom normirovanii," *Sotsialisticheskii trud* 7 (July 1959): 79-84; M. Tertsinskii, "Uproshchennyi metod fotografii rabochego dnia," *Sotsialisticheskii trud* 10 (October 1959): 115-120.

the 1960s was not a clone of its predecessor.[77] For one thing, while the NOT of the interwar period was shaped almost entirely by Gastev, in the 1960s its practical function was up for debate. In 1965 P. F. Petrochenko, a labor economist working at the Siberian branch of the Academy of Sciences, criticized another scholar's attempt to define the science. For the social scientist N. S. Maslova, Petrochenko charged, NOT's primary purpose was to aid in the process of refining norms. Petrochenko countered by arguing that norms were technical issues that represented only part of the organization of labor. In Maslova's formulation, Petrochenko continued, the importance of training and education, two vital aspects of labor organization, were entirely neglected.[78] Besides the conflict over meaning, NOT also began to incorporate new methods. At a meeting of the VTsSPS's short-lived Commission on Economic Questions (KEV) that same year, Petrochenko railed against the problem of lost intra-shift work time. According to him this metric, which essentially measures non-productive time during a shift, was somewhere between ten and twelve percent nationally. This was evidence of poor management. Under these conditions, Petrochenko commented indignantly that it was "impossible to seriously discuss the scientific organization of labor." It was incumbent upon all managers and workers to utilize available methods to improve the use of labor time, otherwise the results could be disastrous. As he put it, "[i]f work isn't organized and it isn't under the constant control of the broadest masses, then it may well become work that's only necessary for ticks." To find solutions, personnel in Siberia and the Far East

[77] Melanie Tatur, "Wissenschaftliche Arbeitsorganisation:" Zur Rezeption des Taylorismus in der Sowjetunion," *Jahrbücher für Geschichte Osteuropas* 25, 1 (Jan. 1977): 34-52.
[78] P. F. Petrochenko, ed., *Voprosy nauchnoi organizatsii truda na promyshlennom predpriiatii* (Moscow: Mysl', 1965), 37.

developed a new method – targeted self-photography – to locate inefficiencies. Self-photography required workers, including managers and engineering-technical workers (ITR), to record their own behaviors via photographs and hand-written notecards for review. Conscientious workers could use the reports to improve their work habits; managers could use them to develop new methods. According to Petrochenko, the utilization of self-photography in the radio-technology industry in Novosibirsk had helped reduce lost work time from between fourteen and eighteen percent to around four percent. Elsewhere, it helped expose shortcomings in the organization of labor. It was discovered that in some factories ITR spent almost half of their work time loading and unloading materials – typically the job of semi-skilled auxiliary workers – rather than focusing on their own tasks. For Petrochenko, this called for a review of enterprise personnel not just to ensure that work was being done rationally, but also to ascertain what exactly some workers were doing.[79]

I. Ia. Kasitskii, a correspondent from the journal *Kommunist*, remarked that in fact Petrochenko's numbers were far too generous. Kasitskii speculated that the rate of lost labor time was closer to thirty-five percent. This was not a condemnation of Petrochenko; Kasitskii claimed that this number was typically minimized in publications because there was a pervasive "fear about writing or speaking about it" openly. As a thought experiment, Kasitskii asked the chamber to consider what it would mean if lost labor time in the Soviet Union really was only ten percent. "We have in the people's economy more than eighty million workers. That would mean that we have the equivalent of around

[79] *Gosudarstvennyi arkhiv Rossiisskoi Federatsii* (GARF), *fond* (f.) 5451 (Collection of the All-Union Central Council of Trade Unions), *opis'* (op.) 61, *delo* (d.) 22, *listy* (ll.) 4-15 "Transcript of the Meeting of the KEV VTsSPS" (19 February 1965).

eight million idle workers." This represented a rich reserve of productive strength, he reasoned. Harkening back to his time as a deputy director of labor during the war, Kasitskii recalled that one of the principal sources of lost labor time was unorganized workstations. Though Kasitskii did not offer specifics, he insisted that the situation was not rectified until workers began using methods derived from NOT. R. A. Eidelman, a research fellow from the Institute of Labor, strongly supported targeted self-photography, but cautioned that it would be best implemented through an officially developed state method using "very specific documentation" to guide the work of "improving workspaces, organizing better work rhythm, and improving work conditions." Others insisted on monitoring even the best trained workers. Noting that the Soviet Union then had three times more specialist ITR than the United States even while the latter outproduced the former by more than two times, one commenter suggested ensuring that ITR labor should also be thoroughly analyzed.[80]

The problem of labor organization was not left to NOT alone. Khrushchev was right to be concerned about labor turnover. One contemporary study found that between 1950 and 1960 labor turnover had increased from fifteen to nineteen percent in industry and from eighteen to forty-one percent in construction.[81] A survey of readers of *Trud*, the VTsSPS newspaper, found that the primary reasons workers left their job was to find better wages and housing amenities.[82] V. V. Grishin, the chairman of VTsSPS buttressed these assertions, noting that labor turnover was especially high in regions where social

[80] GARF f. 5451, op. 61, d. 22, ll. 33-37, 55-58, 64-65, 79-80.
[81] L. S. Bliakhman, A. G. Zdravomyslov, and O. I. Shkaratan, *Dvizhenie rabochei sily na promyshlennykh predpriiatiiakh* (Moscow: Ekonomika, 1965), 15.
[82] "Glavnoe – zabota o cheloveke," *Trud* 8 Februrary 1963, 2.

services were sparse.[83] Revealing a hint of nostalgia for the Stalin period, Goskomtrud chairman A. P. Volkov argued that labor turnover had increased in recent years in part due to the CPSU's decision to abandon coercion and supplemental rewards for continuous service at a single enterprise. Meanwhile, managerial strategies had failed to keep up with the technological level of the means of production. Referencing the more than 9,000,000 auxiliary workers in industry alone, Volkov suggested that labor needed to be reorganized in order to keep up with new machine technologies.[84]

In January 1963, KEV held a meeting to discuss the problem of labor turnover. Smirnov, the chairman of the trade union of the metallurgical industry in Gor'kii, suggested increasing the wages of night-shift workers to encourage them to stay on. Observing that workers often quit to find access to better child-care facilities, he also recommended rewarding enterprises that constructed such accommodations rationally by allowing them to keep the rubles saved. This, Smirnov speculated, would prompt the erection of more child-care facilities. Putnev, from the Hammer and Sickle factory, argued that the combination of excessive vacation time – by 1964 the average Soviet worker received 18.5 vacations days per year – plus a rather slow-growing population rate resulted in a general shortage of labor, which effectively encouraged labor turnover. "Where do we find additional labor?" he asked with just a hint of exasperation. M. Sonin, a prolific writer on labor economics, suggested learning from Czechoslovakia, where workers could not quit their job without union permission. "If [a worker] quits without permission from the union," he remarked, "we have to pursue tough measures." Echoing

[83] "Doklad Predsedatelia VTsSPS tovarishcha V. V. Grishin na XI plenume VTsSPS," *Pravda* 25 December 1963, 2.
[84] "Rech' tovarishcha Volkova," *Pravda* 22 November 1962, 2.

Volkov, Pankratov from the Vladimir Il'ich factory complained that an overabundance of auxiliary workers on time-plus-premium method of payment in his factory had a deleterious effect on aggregate wages at the plant; in response, he claimed, other types of workers demanded that auxiliary workers be reclassified. This, Pankratov argued, was also a form of turnover. For his part the chairman of the Commission, Grigor'ev, argued that enterprises that were unable to implement up-to-date technological processes or provide workers with access to suitable amenities should not be allowed recruit labor at will.[85]

A few months later in May 1963, KEV convened a meeting to specifically consider strategies to reorganize labor. To decrease the number of workers, but auxiliary workers in particular, required in individual factories, Sonin suggested first simplifying the plan to include only two success indicators: the wage fund and total production. Second, to incentivize administrators and workers to use labor more effectively he advised allowing the enterprise to control some portion of funds economized as a result of personnel reduction. Sonin did not suggest wholesale or hasty implementation of his ideas. "I think it would be best," he remarked, "if we start with an experiment."[86]

[85] GARF f. 5451, op. 61, d. 3, ll. 4-6, 25-26, 31, 33-34 "Transcript of the Joint Meeting of the Section of Labor Organization, Wages, and Norms of the KEV VTsSPS" (9 January 1963); GARF f. 5446, op. 98, d. 320, l. 35 "On the Duration of Established Workers' and Employees' Vacations" (5 November 1964).
[86] GARF f. 5451, op. 61, d. 6, ll. 63-64 "Transcript of the Meeting of the KEV VTsSPS" (10 May 1963).

3: 1964, A Turning Point

By the mid-1960s, the Soviet system began showing signs of economic trouble. Chapter three demonstrates that, following at least some of the suggestions advanced by intellectuals in the popular and learned press, the party implemented various economic experiments at individual enterprises and state farms to try to recapture some lost momentum. Some of these efforts constituted entire systems of production, encompassing everything from trade to wages, while others modified only certain elements of production. These experiments set off another round of conversations, this time primarily in the pages of *Socialist Labor*, about the specifics of various policy changes. A culture of economic experimentation, in other words, was growing rapidly. Its effects, however, could not save Nikita Khrushchev's career, and in 1964 the First Secretary was peacefully removed from power. The Shchekino Chemical Combine was not included among the facilities to utilize new economics metrics or practices. Nevertheless, the enterprise made significant strides towards rationalization. Most importantly, the combine's new chief economist, Vera Slepykh, spearheaded initiatives such as the erection of new factory-level institutions and educational programs that taught workers the basics of contemporary economics.

When it began in the early 1960s, economic experimentation in the Soviet Union was necessitated as much by material conditions as it was inspired by the theoretical debates so prevalent in the pages of contemporary popular and learned publications. By then, the reforms Nikita Khrushchev had introduced early in his tenure as party secretary began to unravel. In 1962, many of the economic councils (*Sovnarkhozy*) Khrushchev had established to take the place of the power- and resource-hungry industrial ministries

were incorporated; their total number was reduced from 105 to forty-three. Not long thereafter, an All-Union Council of the National Economy was established in Moscow. Its purpose was to design and administer economic plans through the republican governments and the remaining economic councils. For Moshe Lewin, this was a clear sign that "a central level was being recreated" to oversee, if not smother, regional institutions. The primary problem with the *Sovarkhoz* reform, he continues, was not just the councils' tendency to prioritize their own region, but also that the pre-reform branch ministries had possessed technical and scientific expertise that was not easily replaced.[1] Within the enterprise itself, the economic councils were supposed to make it easier for managers and workers to locate "hidden reserves" of production potential. If labor productivity as a metric can help to determine the success of the reform, then the record is clear: after a brief period of success, by 1962 the *Sovnarkhoz* system stopped paying dividends.[2]

Table 3.1
Rate of Growth in Labor Productivity under the *Sovnarkhoz* System*

1957	1958	1959	1960	1961	1962	1963	1964
107	106	107	105	104	106	105	104

*all figures in percentage of previous year
Source: *Narodnoe khoziaistvo SSSR v 1967 g.: Statisticheskii ezhegodnik* (Moscow: TsSU, 1968), 121.

Worse still, problems with food supply had not abated. Though agricultural production continually improved during Khrushchev's tenure, its rate of growth slowed significantly from 1958. The tendency culminated in a disastrous harvest in 1963. To

[1] Moshe Lewin, *The Soviet Century* (London: Verso), 221-222. Others have stressed that recentralization of economic management began more or less immediately after the establishment of the *Sovnarkhoz* system. See William J. Conyngham, *Industrial Management in the Soviet Union* (Stanford: Hoover Institution on War, Revolution, and Peace, 1973), 105.
[2] On the *Sovnarkhoz* system see Nataliya Kibita, *Soviet Economic Management under Khrushchev: The Sovnarkhoz Reform* (New York: Routledge, 2013).

supplement the difference, the party-state turned to the world market for grain.[3] In 1962 Khrushchev, at the behest of Deputy Prime Minister Alexei Kosygin, also increased the price of food.[4] Beginning on 1 June, the cost of meat and butter increased by thirty and twenty-five percent, respectively. This was too much to ask of a workforce that was also in the process of adapting to new norms established as a part of the ongoing wage reform. The following day, thousands of workers – some carrying red flags and portraits of Marx, Engels, and Lenin – in Novocherkassk, a city in Rostov region near the Ukrainian Republic, marched in protest to the regional party headquarters. Tragedy struck. The

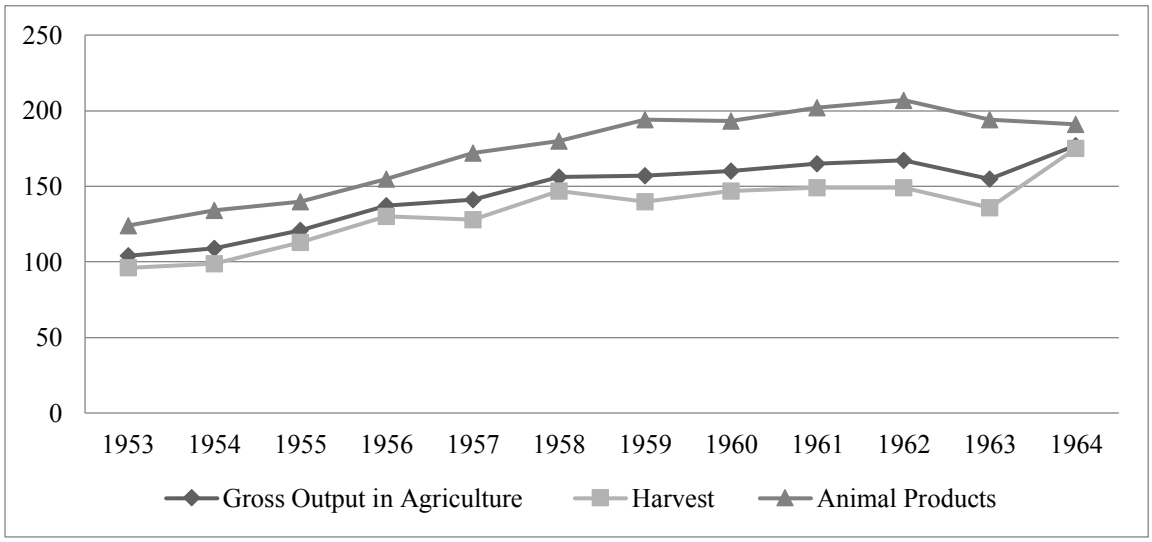

Figure 3.1
Rate of Growth in the Agrarian Sector, 1953-1964
***in percentage of 1940**
Source: *Narodnoe khoziaistvo SSSR v 1967 g*, 328.

general in command of troops stationed nearby issued a warning that the demonstrators did not heed. Troops opened fire, killing twenty-four protestors and injuring dozens more. After the carnage, over 100 people were tried for their role in the demonstration;

[3] G. A. E. Smith, "Agriculture" in *Khrushchev and Khrushchevism*, ed. Martin McCauley (Bloomington: Indiana University Press, 1987), 95-117. Here, 112.
[4] William Taubman, *Khrushchev: The Man and His Era* (New York: WW Norton, 2003), 519.

seven were executed.[5] The Novocherkassk Massacre, as the event has come to be known, was never officially acknowledged during the Soviet period. Yet, according to his son Sergei, the event "tormented" Nikita Khrushchev until the end of his life.[6]

It is sometimes suggested that in his efforts to grow the Soviet economy, Khrushchev relied on political mobilization to inspire the masses to work more efficiently.[7] But, as evidenced by the rationalizing character of the socioeconomic experiments that took place under his rule, there were limits to his populism. Ivan Khudenko, director of the finance department of a Virgin Lands Territory State Farm in the Kazakh Republic, was at the forefront of one such development. State farm workers were typically paid by hectare sowed, irrespective of the productivity of the plot.

Table 3.2
Summary Ivan Khudenko's
Experiment in its First Full Year

	1962	**1963**
Total (spring) Grains (in tons)	3,150	9,204
Average Annual Number of Workers	202	29
Grain Output per Worker	156	3,173
Wages (in thousands of rubles)	181	59

Source: G. Ivanov and A. Strelianyi, "Daite slovo urozhaiu," *Komsomol'skaia pravda* 15 October 1965, 2-3.

Beginning in 1961, Khudenko introduced a method that instead paid state farm workers according to outcome. As much as one percent of planned profit and thirty percent of

[5] Samuel Baron, *Bloody Saturday in the Soviet Union: Novocherkassk, 1962* (Stanford: Stanford University Press, 2002).
[6] Sergei N. Khrushchev, *Nikita Khrushchev and the Creation of a Superpower*, trans. Shirley Benson (University Park: Penn State University Press, 2000), 501.
[7] George W. Breslauer, *Khrushchev and Brezhnev as Leaders: Building Authority in Soviet Politics* (London: Allen & Unwin, 1982), 13. See also the relevant essays in Melanie Ilic and Jeremy Smith, eds., *Soviet State and Society under Nikita Khrushchev* (New York: Routledge, 2009).

profit accrued after plan fulfillment went to the state farm's fund. In implementing his experiment, Khudenko developed a seven-tiered pay scale that rewarded workers who mastered multiple specializations. Writing in *Izvestiia*, Khudenko boasted that the first state farm to implement the experiment produced a larger harvest than its neighboring state farm while also amassing more profit.[8] The state farm and its brigades were also able to save funds by independently completing administrative and accounting work. Table 3.2 summarizes the effects of this initiative, which was fully implemented in 1963.

Not long after Khudenko began his experiment, in 1964 the Bol'shevichka association in Moscow and Maiak association (*ob"edinenie*) in Gor'kii – production units that, not unlike combines, were comprised of multiple (usually three to five) factories united under a centralized authority – were granted permission to eliminate gross output as a success indicator.[9] In essence, the Bol'shevichka-Maiak experiment nullified the effects of the dreaded "ratchet principle." According to M. Kuznetsova, Bol'shevichka's director and chief economist, the result of emphasizing gross output had been a mass of unwanted garments that the trade organizations could only sell at drastically reduced prices. Millions of rubles were squandered as a result. From 1 July the associations instead produced according to orders placed by the trade organizations. Put simply, they fulfilled contracts. All indices were replaced by volume of output sold and profit. To improve labor discipline, workers were awarded bonuses contingent on factory fulfillment of these indicators: up to four percent of profits were used to grow the bonus fund and to finance capital construction projects. Individual workers could receive

[8] I. Khudenko, "Po urozhaiu i zarabotok," *Izvestiia* 2 December 1961, 3.
[9] Alice C. Gorlin, "The Soviet Economic Associations," *Soviet Studies* 26, 1 (Jan. 1974): 3-27. Here, 4.

premiums that equaled up to fifty percent of their respective base pay.

Experimenting with this sort of production plan had unforeseen consequences. Kutzentsova found that high-quality suits, generally the most expensive to manufacture and thus the most beneficial to the fulfillment of the gross output index, were rarely ordered while demand for inexpensive garments was consistent. To increase production of low-cost clothing, personnel had to reorganize production in the association. Profit at Bol'shevichka initially dropped from nine to 5.6 percent. The Ministry of Finance condemned the experiment. But Kuznetsova countered, arguing that the former figure was merely "paper profit" since so many goods went unsold, while the latter, attained through actual sales, "reflect[ed] the real state of affairs."[10]

The associations pressed on and by September the experiment began paying off. According to reporters at *Ekonomicheskaia gazeta*, the weekly economic newspaper of the Central Committee of the Communist Party, by then profits had climbed by twenty-seven percent at the Bol'shevichka Association and by twenty-nine percent at the Maiak Association.[11] The following month, the All-Union Council of the National Economy moved to implement the conditions of the experiment at other factories in the light industrial sector.[12] Two writers – one from the State Planning Commission (Gosplan) and another from the Institute of Economics of the Academy of Sciences – argued that the results of the experiment might be even more impressive if its features were extended to other related industries such as machine construction, which produced equipment for

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[10] M. Kuznetsova, "Spros, kachestvo, plan," *Pravda* 4 October 1964, 4; V. Veselovskii, "Na konveiere – apollony: Legkaia promyshlennost' budet rabotat' po novomu," *Nedelia* 25-31 October 1964, 4-5.
[11] "Priamye sviazi: Zametki s zasedaniia Sovnarkhoza SSSR," *Ekonomicheskaia gazeta* 28 October 1964, 4.
[12] "Eksperiment na ekzamene," *Izvestiia* 20 October 1964, 1.

textile mills, and chemical production, which produced dyes.[13]

The Khudenko and Bol'shevichka-Maiak systems have received ample attention from scholars.[14] But these were not the only economic experiments to take place during the Seven Year Plan. In the April 1964 edition of *Socialist Labor*, S. Shkurko, a labor economist working at the State Committee on Labor and Wages (Goskomtrud), summarized some ongoing efforts to improve remuneration standards. Developed with the help of the Academy of Sciences and informed in part by its careful analyses of premiums in the capitalist world and the Eastern European people's republics, these experiments were indicative of Soviet industrial leaders' commitment to learning from scholarly considerations of the global economy. In March 1964, Goskomtrud and the All-Union Central Council of Trade Union (VTsSPS) chose several enterprises from six industrial ministries – including, among others, the Gor'kii Automobile Plant and the Voskresensk Chemical Combine – to experiment with different methods of distributing bonuses. This strategy, Shkurko explained, was necessary to account for the wide range of production processes in the Soviet economy. In the production of ferrous metals, where the cost of raw materials was high while that of fixed assets was relatively low, bonuses were paid according to increased production, improvements in labor productivity, or reduced costs. By contrast, in the textile industry, where the cost of raw materials represented around ninety percent of total expenditure, additional payments depended on the efficient performance of machines, measured by production quality. The

[13] L. Pekarskii and S. Anufienko, "Krylia eksperimenta," *Komsomol'skaia pravda* 3 June 1965, 1.
[14] On Khudenko see V. V. Filatov, *Delo zhizni Ivana Khudenko* (Alma-Ata: Kainar, 1990). On the Bol'shevichka-Maiak experiment see George R. Feiwel, *The Soviet Quest for Economic Efficiency: Issues, Controversies, and Reforms* (New York: Praeger, 1967), 235-242.

economic councils and ministries were given permission to establish additional indicators appropriate for individual enterprises. This included the possibility of different bonus structures between workshops within a single factory.

An adamant proponent of economic experiments, Shkurko was eager to discuss their future. The economist supported putting into practice enterprise-level bonus funds comprised of, for example, the remainder of the wage fund at year's end less debts incurred from overspending. Likewise, he foresaw a prominent role for both labor productivity and production quality as sources for paying out bonuses. But Shkurko was worried about other trends, above all the continued obsession with "production capacity," or what Khrushchev called "production reserves." Rewarding enterprises for improving their exploitation of extant capacity risked inadvertently punishing well-managed enterprises: if no "reserves" existed, then neither did opportunities to receive premiums.[15]

Two other experiments got underway that spring. Beginning in April 1964 the K. I. Frolov Factory, a textile plant located in Ivanovo, applied a bonus system designed to target workers, engineering-technical workers (ITR), and white-collar employees (*sluzhashchii*) simultaneously. The specifics of the method were based on the recommendations of various economic councils and Goskomtrud's Institute of Labor. The size of bonuses was determined by mandatory and supplemental factors. If the former – reduction of production costs, increase in labor productivity measured in rubles' worth of products produced per worker, and improvement of production quality – were not satisfied then no bonuses were paid. The latter, which could lessen, but not eliminate,

[15] S. Shkurko, "Vazhnyi eksperiment v premirovanii rabotnikov promyshlennosti," *Sotsialisticheskii trud* 4 (April 1964): 47-55.

bonuses varied from job to job. The entire schema was conditioned on fulfilling yearly production plans. To inspire workers' trust that the standards would endure, management agreed to continue the experiment for a period of between two and three years.[16] In May, the Moscow Braking Plant, a machine-building enterprise, introduced an experiment designed by Gosplan and the VTsSPS, in conjunction with the Moscow City *Sovnarkhoz* and the Institute of Labor, to incentivize workers to increase labor productivity and profitability. The factors used to determine the size of workers' bonuses were not uniform across the enterprise. In the general workshop, ITR and white-collar employees were rewarded for increasing their respective shop's gross output and reducing its cost of production; a special, similar arrangement was worked out for auxiliary personnel. By contrast, bonuses for management and service shops – including energy, transport, and repair and construction – were paid out according to the enterprise's general performance. Premiums were distributed out of shop-level bonus funds established under the supervision of the enterprise. Additional regulations ensured that workers most responsible for cutting costs, which was then the enterprise's most urgent goal, received the most generous rewards.[17]

Logically enough, adjusting labor organization was an important part of attempts to improve labor productivity. We have already seen that in the mid-1950s industrial leaders revived the interwar practice of combining professions. Some of the lessons drawn from this experience were discussed a decade later in a pair of articles published in

[16] V. Tikhomirov, "Pervye rezul'taty eksperimenta v premirovanii," *Sotsialisticheskii trud* 8 (August 1964): 42-45.
[17] V. L'vov, "Eksperiment i ekonomicheskaia rabota na predpriiatii," *Sotsialisticheskii trud* 6 (June 1964): 32-36.

the October 1964 edition of *Socialist Labor*. The first, written by L. Semenov, observed that strategies for combining jobs looked quite different than in earlier years in Soviet history. It could not have been otherwise. As Semenov put it, "the combination of professions reflects a historically determined stage." Semenov dated the contemporary practice of combining professions to the birth of the movement for communist labor in 1958. This made the movement for communist labor quite different than earlier socialist competition campaigns, above all Stakhanovism. A movement based on celebrating individual production records, Stakhanovism, Semenov argued, stifled any effort to combine professions. The result was an "artificial fragmentation" of job duties that, due to the complacency of the late Stalin period, survived well after technological advances made a new division of labor necessary. "Technology has gone ahead," Semenov wrote, "but the division of labor remains the same."

The failure to update labor organization had a deleterious effect on the Soviet economy. Some of the primary issues were easily observable. Excessively narrow professions, Semenov posited, led to significant downtime. Many workers were responsible for duties that simply did not require an entire workday to accomplish; after completing their obligations, some spent the remainder of their shift avoiding work. Workers were well acclimated to this situation. The widespread aphorism of the day, "[if] the equipment is working well, the technicians can play checkers" hints at a certain tendency. Semenov posited that the best way to reduce downtime was to pursue "complete interchangeability" of personnel, a goal that complemented the movement for communist labor's focus on forming brigades of workers who had mastered multiple professions.

Both experimentation and attempts to estimate the impact of a comprehensive approach to combining professions seemed to corroborate Semenov's theory. According to its yearly plan, the Nizhnii-Tagil Metallurgical Combine, located in the city of the same name in the Sverdlovsk region, was scheduled to receive over 300 new workers. Management rejected the additional labor. But because sixty percent of its personnel – equivalent to around 8,000 workers – had already learned a second profession, the shop was actually able to grow production (presumably over the previous year). The community of Soviet economists would not have been surprised. At least some of them argued that "a broader development" of combining professions would increase national labor productivity figures by two to three percent.

But Semenov cautioned against generalizing combining job duties without paying special attention to compensation. It would be far too easy, he explained, for managers and workers alike to claim bonus payments for job combinations that provided no material benefit to the national economy. To avoid hasty reorganization and ensure rational decision-making, Semenov supported centralized control over the process of combining jobs. But he recognized that this process could also be slow and complicated. Semenov coyly suggested delegating some responsibility to enterprises themselves. "Perhaps," he wrote, "we should look for more flexible forms of state regulation over bonuses for combining professions."[18]

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[18] L. Semenov, "Sovmeshchenie professii – etogo trebuet zhizn'," *Sotsialisticheskii trud* 10 (October 1964): 22-31.
The fitter (*slesar'*) was an excellent example of the failure of industrial leadership to adapt the division of labor to new conditions. As Semenov noted, in 1937 fitters were required to understand the basics of machine-tool construction beginning only at the fourth skill grade. But by 1964, this knowledge was required of all fitters beginning on the first day of work.

A. Veinberg, an economist and advocate for the scientific organization of labor (NOT), was more confident in his assertions. Shortcomings in the organization of labor, Veinberg argued, limited the spread of job combinations. Time-rates workers who took on additional occupations were paid at the rate of the profession affixed to the higher wage scale. These workers could also be rewarded with overtime hours. But piece-rates workers, by definition, could benefit from neither. Veinberg argued that these and other associated problems persisted because Soviet institutions – be they national ministries or decentralized economic councils – were ill equipped to handle them. "All kinds of departmental restrictions," he wrote, "serve to emasculate the vital organizational work to expand the production profile of workers." Veinberg supported turning over to the enterprises the responsibility for determining how to compensate workers who had taken on additional jobs. Only there, he argued, could the complexity of the matter be fully appreciated.

Veinberg was convinced that NOT remained relevant. He rejected the argument, advanced by some Soviet economists, that the near constant introduction of new technologies would soon do away with the division of labor. Instead, Veinberg insisted that technological progress tended to give rise to specialized knowledge, which created new professions and increased demand for old ones, namely repair workers. Like some of his counterparts in Europe and the United States, who sometimes spoke of the relationship between "multi-specialization" or "job enlargement" and automation, Soviet social scientists well understood that production technologies did not diminish the demand for labor. As this process accelerated, it had become increasingly difficult, eventually impossible, for a single worker to master the totality of machine work in a

given enterprise. "Further division of labor," he concluded with certainty, "will take place." Combining jobs rationally, or, scientifically, was therefore paramount. Technological advances had allowed certain jobs in certain industries to be accomplished with the push of a button or pull of a lever. In these cases, Veinberg suggested administrators rely on their "economic sense" and eliminate, or at least drastically modify, the professions in question. This was no smooth transition. Where these phenomena could already be observed, Veinberg noted that the additional burdens placed on managerial and administrative staff had led to bloated budgets.[19]

The Shchekino Chemical Combine was not among the factories to experiment with new economic indicators in 1964. But after struggling through an inauspicious winter, the enterprise's evolution nevertheless continued. On 28 January, enterprise director Petr Sharov received a memo from K. Iakovlev, the chairman of the Priokskii economic council – the *Sovnarkhoz* that oversaw production in Shchekino along with much of Tula region – that concerned one of the enterprise's more glaring problems. Production in the enterprise's first urea shop had been consistently disappointing since its inauguration. While in 1962 production ran at only twenty percent of capacity, the following year the shop's performance fell well short of expectations. Iakovlev conceded that the Research and Design Institute of the Nitrogen Industry and Organic Synthesis Products (GIAP) had erred in its estimations of the combine's production technologies. But he also reminded Sharov that it was he who had accepted demands made of the shop

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[19] A Veinberg, "Nauchnaia organizatsiia truda i sovmeshchenie professii," *Sotsialisticheskii trud* 10 (October 1964): 37-41.

On "multi-specialization" see Georges Friedmann, *Le travail en miettes, spécialisation et loisirs* (Paris: Gallimard, 1956). On "job enlargement" see, for example, Robert H. Guest, "Job Enlargement – A Revolution in Job Design," *Personnel Administration* 20, 2 (March-April 1957): 9-16.

with full knowledge that installation work had not yet been completed.[20] Unfortunately, there were no quick fixes. Well into the summer, *Khimik* editorials admonished the shop for wasting raw materials.[21]

Iakovlev focused his ire on urea production, but this was not the enterprise's only weak spot. In March 1964 *Kommunar* spelled out the numerous deficiencies that also plagued the ammonia shop. Over 250 tons of ammonia were lost in January because administration had failed to ensure the installation of purification equipment. What is more, the thermal power station regularly delivered substandard raw materials used in the production of ammonia water. The silt and salt residue from contaminated water often caused congestion in refrigeration units, forcing temporary shutdowns. As crews opened the equipment for cleaning, hundreds of thousands of cubic meters of pollutants were released into the air.[22] The enterprise's rate of aggregate production suffered for the shortcomings. In a continuation of a troubling trend that dated to the previous year, at the end of the first quarter of 1964, the rate of the growth of wages (104.9 percent) surpassed that of labor productivity (103.7 percent).[23]

But some of the expectations placed on Sharov and the Shchekino Chemical Combine were almost certainly unfair. One article in *Khimik* written by F. Shepelev, the head of the personnel training department, explained that rapid expansion had put the enterprise in a tough spot. The introduction of caprolactam and methanol production,

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[20] *Gosudarstvennyi arkhiv Tul'skoi oblasti* (GATO) *fond* (f.) R – 3407 (Collection of the Management of the Chemical Industry of the National Economic Council of the Priokskii Economic Region), *opis'* (op.) 1, *delo* (d.) 15, *listy* (ll.) 2-3 "Order of the RSFSR Priokskii Economic Region" (28 January 1964).
[21] "Bol'she, deshevle, luchshe!: Ekonomicheskaia konferentsiia v pervom tsekhe karbamida," *Khimik* 27 June 1964, 2.
[22] "Shchekinskii ammiak – polnoi meroi!," *Kommunar* 24 March 1964, 2.
[23] GATO f. R – 3407, op. 2, d. 55, l. (no pagination) "On the Growth of Labor Productivity and Average Wages of Industrial-Production Personnel of the Shchekino Chemical Combine" (undated).

scheduled for late 1964, required an additional 1,600 skilled workers and 200 engineering-technical workers. This was a significant addition; for reference, at the end of 1963, there were 4,437 total workers at the combine. Around eighty percent of prospective workers could be trained in regional vocational schools and other educational institutions. But the remainder would have to learn on the job. Saddled with the obligation to take on trainees, shop leaders had a difficult time completing their own duties. Some found the burden too much to bear. One irritated worker, Kotovny, wrote to Shepelev plainly, "we don't have the room for [more trainees]." Even when veterans welcomed them, new workers were difficult to register for work. Though they were already accounted for in the enterprise's payroll, the personnel training department was still responsible for filling out paperwork before the novices could begin their training.[24] Furthermore, the problem with ammonia production was much more complicated than the press let on. The Scientific Research Institute of Oxygen Engineering (VNIIKIM) was the major culprit in this debacle. Ammonia is a compound of nitrogen and hydrogen. To purify the former, pressure is applied. VNIIKIM assumed, without confirming, that this would require 200 standard atmospheres of pressure (equivalent to almost 3,000 pounds per square inch); the reality was almost twice that. This adjustment required VNIIKIM to produce and deliver an entirely new piece of machinery.[25]

Experimental strategies were acknowledged, but management at the Shchekino Chemical Combine continued to rely on old remedies to try to cure its numerous ills.

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[24] F. Shepelev, "Novym proizvodstvam – vysokokvalifitsirovannye kadry," *Khimik* 13 June 1964, 2; GATO f. R – 3407, op. 2, d. 40, l. 103 "Yearly Report of the Shchekino Chemical Combine on Basic Activities in 1963" (undated).

[25] GATO f. R – 3407, op. 1, d. 25, l. 23 "On the Issue: The Organization of the Production of Pure Nitrogen at the Shchekino Chemical Combine" (6 March 1964).

Shkurko's warnings notwithstanding, scores of articles in the press reminded readers that every worker was responsible for making use of her or his extant reserves.[26] Locating and exploiting production reserves was one of the priorities of the almost 4,000 workers involved in the movement for communist labor.[27] Various worker-led proposals aimed to improve the use of time, tools, or raw materials. For example, in early 1964, fifty-four workers created an ad hoc group to handle the maintenance of air separation units; the initiative reduced the repair time from twelve to four months and saved 27,000 rubles.[28] The head of the regulatory research group at the combine, N. Dobrutskii, called on auxiliary workers to utilize the "colossal reserves" concealed in their day-to-day work.[29] Though there is no evidence that it led to any changes, a task force was set up to teach workers about the experimental methods used at other factories – such as the Voskresensk Chemical Combine in the Moscow region – to make use of production reserves.[30]

Combining job duties, however, became more common. In January 1964, *Banner of Communism*, the newspaper of the Shchekino City Communist Party, noted that "[t]he movement for mastering related professions has recently become widespread" in the

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[26] "U kazhdogo rabochego est' svoi rezerv," *Khimik* 29 February 1964, 1; R. Fetisova, "Zadumali – sdelali," *Khimik* 29 February 1964, 1; V. Dubkov, A. Novikov, and A. Sharapov, "Prosto i udobno," *Khimik* 29 February 1964, 1; G. Rodnitskii, "Ekonomiia – 1,500 rublei," *Khimik* 13 June 1964, 1.
[27] GATO f. R – 3407, op. 2, d. 55, l. (no pagination) "Socialist Competition of Production Collectives, Workshops and Sections of Industrial Enterprises of the Priokskii Sovnarkhoz" (27 December 1963); GATO f. R – 3407, op. 2, d. 56 l. (no pagination) "Report: On the Leaders of the Movement for Communist Labor in the Shchekino Chemical Plant of the Priokskii SNKh for 1 October 1964" (undated); "Doklad predsedatelia VTsSPS sorevnovaniia brigad i udarnikov kommunisticheskogo truda," *Pravda* 30 May 1960, 2-4; A. Lobanova, "Plius khimizatsiia," *Znamia kommunizma* 22 April 1964, 2.
[28] GATO f. R – 3407, op. 2, d. 40, l. 101 "Shchekino Chemical Combine Annual Report on Main Activity in 1963" (undated).
[29] N. Dobrutskii, "Proizvoditel'nost' truda – na vysshii uroven'," *Khimik* 1 February 1964, 2.
[30] V. Peremyshlin, "Takie rezervy est'!," *Khimik* 25 April 1964, 2.

Shchekino region.[31] This was not an exaggeration. Just as sociologists had difficulty distinguishing between social groups, some doubted whether workers could differentiate among themselves. For example, workers in the Shchekino Chemical Construction Trust combined the jobs of welders and installers with such frequency that one journalist commented that brigades "don't understand" any separation between the two. Olga Voropaeva's brigade, also at the construction trust, consisted entirely of women trained as concrete workers. But Voropaeva's team could also waterproof conveyor gallery channels and even lay roofs.[32] At the Shchekino Chemical Combine, auxiliary workers, typically subject to derision, were credited with advancing combinations such as driver-loader and fitter (*slesar'*)-electrician.[33] Aspiring communists were venerated for taking on new responsibilities. For example, Viktor Biriukov, who had been trained as a chemical operator (*apparatchik*) frequently also worked as an installer.[34] Groups formed to study broad topics such as economics and politics often included lessons on performing related professions.[35]

But the most important change was the appointment of Vera Slepykh to chief economist. Slepykh would have been an ideal choice to spearhead an economic turnaround. Born in the small town of Troitsk in the southern Urals, Slepykh left school in the seventh grade to help repair tanks and aircraft engines at the Troitsk Machine-Building Plant during the Great Patriotic War. She had a knack for the job and was transferred to work as a turner (*tokar'*), sometimes known in the Anglophone world as a

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[31] "Kazhdomu rabochemu – smezhnuiu professiiu," *Znamia kommunizma* 28 January 1964, 1.
[32] V. Serov, "Tvoia smezhnaia professiia," *Znamia kommunizma* 4 February 1964, 2.
[33] N. Dobrutskii, "Proizvoditel'nost' truda – na vysshii uroven'," *Khimik* 1 February 1964, 2.
[34] I. Mishin, "Viktor Biriukov stanovitsia kommunistom," *Kommunar* 6 June 1964, 2.
[35] A. Lapshev, "Ucheba – vernyi pomoshchnik khimikov," *Kommunar* 21 May 1964, 3.

machine operator. Slepykh spent her free time in evening school and, by the time she left Troitsk, had completed the tenth grade. Though she was first attracted to the study of history, Slepykh made her way to the Economics Department at the Sverdlovsk Polytechnic Institute. Under the tutelage of passionate instructors, Slepykh fell in love with numbers. After graduating, she began working as a senior economist at the Polevskoi Cryolite Factory. But her designated workshop was terminally unprofitable, and her ideas for improvement fell on deaf fears. Like many of his contemporaries, the plant's director saw no value in mathematical economics. But Slepykh's work ethic nonetheless stood out, and soon she was sent to work in the enterprise's planning department. There, she gained valuable experience. After twelve years of service, Slepykh's husband fell ill, and doctors recommended the family relocate away from the region's harsh climate. While looking for a new job, Slepykh came across an ad for economic specialists at the Shchekino Chemical Combine. Not only was she hired, but factory management provided Slepykh and her family with a "new spacious apartment" and permission to bring an assistant with her from Polevskoi.[36]

Published in regional newspapers in the summer of 1964, Vera Slepykh's first articles as chief economist of the Shchekino Chemical Combine were inspired by lessons she had drawn from the conference on the economics of industry and construction held in Moscow that May.[37] Slepykh explained that economics work at the Shchekino Chemical Combine, which essentially began in late 1963, was prompted by the enterprise's ongoing

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[36] V. Zhbankova, "Laureat: o nashikh slavnykh zemliachkakh, *Znamia kommunizma* 8 March 1972, 2; "Vysoka nagrada," *Khimik* 17 November 1971, 1; V. Slepykh, "Ekonomist dolzhen znat' vse," *Za industrial'nye kadry* 19 May 1975, 2.
[37] On the conference on the economics of industry and construction see "Povyshat' ekonomicheskuiu effektivnost' proizvodstva," *Pravda* 19 May 1964, 3.

struggles. Their origins were no mystery. As she noted, the factory's transformation and subsequent expansion made it difficult to achieve anything approximating economic success. Indeed, these projects were massive. Alone, the capacities of each of the new facilities was on par with that of the entire operational enterprise as of 1963. Central planners, who did not expect the enterprise to achieve profitability until 1964, seemed to sympathize. Still, Slepykh was troubled that various workshops entirely ignored economic metrics.

From the beginning of her tenure as chief economist, Slepykh sought to ensure that the combine's economics division played a "serious role" in every element of the combine's activity. This necessitated establishing an entirely new institutional structure internal to the enterprise. Slepykh founded a council to create a curriculum for workers' economic education and a "university" of economics based in the enterprise. Already by summer 1964, 130 managers and workers were enrolled in the latter. Slepykh oversaw the creation of a laboratory of economics and organization of production that focused on production norms as well as a bureau that explored opportunities to improve distribution and transportation. These, and other organizations, came together at the conclusion of the first quarter of 1964 to produce the first thorough analysis of the entirety of the Shchekino Chemical Combine's production and economic activities.

Workers at the combine sorely needed the sort of training in basic economics that Slepykh's programs provided. Mistakes in planning were commonplace. Efforts to diminish cost had been ignored. Natural gas consumption was too high. Power consumption far exceeded planned levels. In January 1964, the second urea shop began hosting bi-monthly conferences to improve economic knowledge. Their conventional

practice provides a glimpse of what economics education entailed on the factory level. The seminar's organizers adopted a hands-on pedagogical approach. Typically, student-workers were assigned topics – some examples included "labor productivity in industrial enterprises and ways to improve it," "success indicators of individual worker's labor productivity," and "uncovering reserves for further growth of labor productivity in industrial enterprises" – that they were expected to discuss at length during the subsequent meeting. In the interim, the trainees would use the theoretical knowledge they received at conferences to improve performance.[38]

Shop accountants and workers in the planning department and department of labor and wages were assigned to collaborate in an ad hoc commission to improve cost accounting. At its first meeting, the commission addressed the problem of auxiliary work. The primary metric used to plan simple repair work had long been cost. Arguing that this method was too abstract to motivate better work, Slepykh and her colleagues chose to switch to emphasis on total standard hours. Her logic was simple and sound. "When the worker knows how much time is allotted for the completion of a given task and how much he will get for it," she argued, "then, naturally, he will do more quickly, more economically" For Slepykh, this was only the beginning. "Until now…[E]conomists simply apply success indicators but never analyze them." This would have to change. "One thing is clear," Slepykh concluded, "shop floor economists must work creatively to help identify and exploit new ways to reduce production costs." Slepykh expected the

[38] P. Burago, "Glavnoe – deistvonnost'," *Khimik* 1 February 1964, 2; "Povyshenie rentabel'nosti produktsii – zalog uspekha," *Khimik* 18 July 1964, 2.

The 1964 report on enterprise performance – presumably a part of the annual yearly report (*godovoi otchet*) – is currently stored in the archives of the Shchekino Chemical Combine itself and is unavailable to researchers.

new infrastructure and focus on economics to be enduring. As she put it, 1964 represented "a turning point in the economy of the chemical plant."[39]

Slepykh was right, but with some caveats. Held in February 1965, the combine's twelfth trade union conference discussed the enterprise's performance in the previous year. If judged by production standards alone, the factory enjoyed a prosperous 1964. The state plan was met by a 101.2 percent. The volume of production doubled. Most importantly, the manufacture of mineral fertilizer increased by 4.4 times. The ratio of the growth of labor productivity to growth of wages recovered after a poor first quarter; by the end of the year, the former (108.5 percent) outpaced the latter (103 percent.) The plant finished the year with a total profit of 3,106,000 rubles. The production of formalin, urea-resins, and ion-exchange membranes was also introduced.[40]

In 1964, the combine fulfilled various measures to improve workers' lives. A new 500-seat canteen and three snack bars were opened. Two of the enterprise's other canteens began providing round-the-clock service. The enterprise arranged for artists from Leningrad and Moscow to visit the enterprise; more than 4,000 workers attended these events. Two "mass trips" were made to the Upa River for rest, though it is not clear who was included. Trade union activists, at least one from every shop, had the opportunity to visit theaters in Moscow. Three hundred and twenty-five vouchers for rest homes were provided to factory personnel; of these, 283 went to workers. More than

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[39] V. Slepykh, "Vyiavliat', analizirovat', uluchshat,'" *Kommunar* 2 June 1964, 2; "V bor'be za rentabel'nost' (Iz vystupleniia zamestitelia direktora khimkombinata V. I. Slepykh," *Znamia kommuniza* 10 July 1964, 3.

The nearby Novomoskovsk Chemical Combine built similar economic institutions. E. Gamretskaia, "Ekonomisty – obshchestvenniki," *Kommunar* 29 February 1964, 2.

[40] GATO f. R – 3469, op. 3, d. 6, ll. 20-21, 27-28 Minutes of the Twelfth All-Combine Trade Union Report and Election Conference of the Shchekino Chemical Combine" (12 February 1965).

1,000 of the enterprise's workers participated in sporting events – including men's and women's volleyball, soccer, basketball, weightlifting, ice hockey, wrestling, chess, and more – and competitions arranged by the Komsomol and the voluntary sports society. Often, these events were supervised by certified trainers.[41]

Steps were also taken to make family life easier and better. The enterprise planned to build 19,675 square meters of housing in 1964; the final total exceeded 21,000. This was enough to house 472 workers' families as well as a few pensioners and some tuberculosis patients. Eight total apartments were set aside for visiting doctors and representatives from GIAP. The arrangement was far from perfect. The factory committee considered the quality of the housing to be "extremely poor" and the new inhabitants complained frequently. Two new dormitories and an eighty-unit apartment building were in the works. Renovations of child services continued. During the summer, 300 children of the enterprise's workers and engineers enjoyed 126 total days of rest and health education at the pioneer campus. The enterprise's system of five kindergartens expanded. If, in 1963 these facilities had enough space for 339 children, then, at the end of 1964 that number had increased to 656. This left around 400 children waiting for a spot in a children's institution.[42]

These marks were met despite significant obstacles. The first urea shop was out of commission for two full quarters for reconstruction, yet state planners offered no

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[41] GATO f. R – 3469, op. 3, d. 6, ll. 51, 53-54, 46. On the voluntary sports societies see L. A. Koroleva, *Dobrovol'nye sportivnye obshchestva v SSSR vo vtoroi polovine 1940-1950-kh gg. (na primere Penzenskoi oblasti)* (Penza: PUGAS, 2016).

Diane Koenker has argued that it would be a mistake to assume that vacation vouchers went to workers. See Diane Koenker, *Club Red: Vacation Travel and the Soviet Dream* (Ithaca: Cornell University Press, 2013).

[42] GATO f. R – 3469, op. 3, d. 6, ll. 47, 55, 57-58.

commensurate reduction in planned production. The primary caprolactam, methanol, and ammonia facilities had still not been put into operation at year's end. Technical documentation was routinely subpar, and equipment often arrived late. Construction of the second urea shop was slowed because shoddy construction led to the collapse of the building's roof. Garin, an engineer in the water treatment shop, testified that the combine's internal roads were in such poor condition it would be easier to get around "by air." Griaznov from enterprise security observed that a broken fence near the oxygen shop allowed anything to be "taken in and out of the plant" with no repercussions. Checkpoints were so neglected that the inebriated were occasionally able to stumble onto factory grounds and wander around. Vorob'ev, a pressure conversion fitter, noted that members of the factory committee rarely visited any of the enterprise's shops in person. Dobriak, the chief of the second urea production facility, added that they had also not checked in on any of its canteens. Varrenikov, a fitter in the repair and mechanical factory (RMZ) complained that "massive delays" in production were caused by unreliable early morning transportation that made it difficult for workers to get to the combine on time.[43]

The state of workplace safety was most alarming for factory administration. Some level of danger was inherent in production at the Shchekino Chemical Combine. Management considered each of the factory's workshops to be "gas hazardous" and predisposed to fires and explosions. To boot, most of the machinery used by workers operated under high pressure. Without adequate attention to safety concerns, this combination could have devastating effects. In 1964 there were thirty-six industrial

[43] GATO f. R – 3469, op. 3, d. 6, ll. 13, 15, 17, 28-29, 32, 42.

accidents, including three fatalities, at the factory. Seven hundred forty-seven workdays were lost due to various injuries. Labor violations, ignoring proper procedure, poor work organization, and damaged equipment were all blamed. But there were also plenty examples of simple carelessness. Worker error led to mass poisoning in the ammonia shop. One worker used equipment incorrectly while cleaning tanks in the railways station; he missed fourteen days of work with severe burns to his face. An electrical fitter in the first urea shop neglected to wear a mask while diluting chemicals on a pulse line; she was out of work for thirteen days after ammonia water splashed onto her face. Rheumatic diseases, heart diseases, stomach diseases, and pneumonia were all commonplace.[44]

Sharov was nevertheless guardedly optimistic about the enterprise's prospects. But he understood quite well that plenty of work lie ahead – addressing the health and safety crisis topped his list of priorities – for the rapidly-evolving industrial giant. In early 1965, the director reminded the trade union conference that in the coming months the Shchekino Chemical Combine planned to erect a new RMZ, a pilot plant for nylon production, and a catalyst factory. The focus would not be entirely on production, however. Crews were already working to improve the condition of the regional stadium and the campgrounds at the Upa River. A new polyclinic, a hospital, and a new house of culture were also on the table. "The collective of the plant," Sharov concluded, "faces important tasks in 1965."[45]

The results of the limited economic reforms under Khrushchev were mixed.

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[44] GATO f. R – 3469, op. 3, d. 6, ll. 15, 33, 42-45.
[45] GATO f. R – 3469, op. 3, d. 6, ll. 17-18.

Although the Bol'shevichka-Maiak experiment continued for some time – in fact it spread to numerous other facilities – both Khudenko and his method were removed entirely by late 1964.[46] There were also problems with the development of enterprise funds designed to encourage collective production. A study conducted by the trade unions found that their effects had been inconsistent. The conditions for the implementation of the funds, in particular the demands on growing profit, were simply too burdensome for some industries. In an increasingly diverse socioeconomic system, it was impossible to issue a general edict to branch industries to prioritize such a metric without consideration of factors such as changes in wholesale price. Likewise, because the labor process was increasingly tied to wages, which, in turn, determined the size of the wage fund, any attempt to develop a single method to motivate collective production would invariably leave some workers, at least comparatively, in the lurch. The report therefore suggested replacing the size of the wage fund as the determinant factor in the development of the supplemental funds with a new metric: the increase in profit over the previous year. How funds were used also constituted a problem. A disproportionate percentage of the fund was being used on projects such as the repair of regional highways, so little was used on the development of housing and other cultural amenities. It suggested the creation of a separate fund to handle these tasks. Finally, in their contemporary form, the funds did nothing to combat the "ratchet principle" or its

[46] On the spread of the Bol'shevichka – Maiak method see V. Zotov, "Vziat' vermyi kurs," *Pravda* 1 October 1965, 3.

Khudenko's experiment had always been somewhat controversial. For cautious support see G. Zagornyi, A. Isakov, and G. Smirnova," "Ravnodushie – delu pomoshchnik," *Izvestiia* 22 March 1962, 4; for criticism see Ia. Chepel', N. Taramonov, and V. Levshin, "Zarabotok – po trudu i urozhaiu," *Izvestiia* 6 February 1962, 3.

associated problems: workers still focused primarily on fulfilling the plan and managers still sought to manage, rather than maximize, the rate of overfulfillment.[47]

Despite the innovations it produced, the culture of experimentation described in this chapter was not enough to save Nikita Khrushchev's career. If the dissidents Roy and Zhores Medvedev are right, it may have helped seal his fate. As they have argued, it was Khrushchev's affinity for administrative tinkering – what his more vociferous critics referred to as "harebrained schemes" – that ultimately sealed his fate. To solve the ongoing agrarian crisis, Khrushchev planned to establish twelve additional centralized committees to oversee attendant aspects of agriculture. This emboldened key figures to move against him. Utilizing entirely legal means – there was no need, Medvedev and Medvedev argue, to plot against a figure that had lost virtually all political and social support – a coterie of over two-hundred members of the Central Committee pressured the First Secretary to deliver his "resignation" without incident. Khrushchev was deposed officially on 14 October 1964.[48]

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[47] *Gosudarstvennyi arkhiv Rossisskoi Federatsii* (GARF) *fond* (f.) 5451, *opis'* (op.) 61, *delo* (d.) 3, *listy* (ll.) 69-79 "Transcript of the Joint Meeting of the Section of the Organization of Labor, Wages, and Norms of the Commission of the VTsSPS on Economic Problems" (9 January 1963).
[48] Roy A. Medvedev and Zhores A. Medvedev, *Khrushchev: The Years in Power* (New York: Columbia University Press, 1976), 171-176.

4: A New System of Planning and Economic Incentives

In 1965, Nikita Khrushchev's successors – Leonid Brezhnev and Alexei Kosygin – initiated a collection of reforms that bore the unmistakable mark of the contemporary economic debates in Soviet periodicals and the real-life changes ongoing in Eastern Europe. Succinctly, the Kosygin Reform, as it came to be known, sought to improve production efficiency by turning over more power to individual enterprises and their managers. The implementation of the Kosygin Reform – or the "new system of planning and economic incentives" as it was called on the enterprise level – was a complicated and drawn-out process. So many managers and workers lacked basic economic education that simply measuring reform's outcome proved challenging. And yet, as chapter four shows, it persisted. At the Shchekino Chemical Combine, the initial results were promising even if necessarily incomplete. What administrators – including the inimitable Vera Slepykh, who at times seemed to be implementing reform on her own – did find was promising. Already by March 1967, just three months after the Kosygin Reform began at the Shchekino works, the once upside-down ratio between the growth of labor productivity and the growth of wages seemed to stabilize. But the logic of reform led many to discuss how to build on what was already generating positive results. In turn, intellectuals and industrial leaders alike began earnestly questioning whether the release of redundant labor could further improve the financial position of individual enterprises. By the spring of 1967, the chapter concludes, they had their answer.

In October 1964, Soviet leader Nikita Khrushchev was replaced by a duumvirate of Leonid Brezhnev and Alexei Kosygin. While Brezhnev took control of the Communist

Party, Kosygin became the new head of the Soviet government.[1] In the realm of economic management, there were important similarities between the Khrushchev and Brezhnev-Kosygin regimes. Neither had any intention of reverting to Stalin-era coercive measures to control society or instill labor discipline; both preferred instead to offer workers material incentives. But there were also some significant differences. If Khrushchev's commitment to mobilization and political campaigning made him a borderline populist prone to constant reorganizations, then his successors were in fact quite dissimilar. In a recent German-language biography, Susanne Shattenberg has portrayed Brezhnev as a leader haunted by the excesses of the Stalin period and determined to create a stable domestic order.[2] Two Russian scholars, meanwhile, have described Kosygin as a "typical representative of a layer of technocrats" committed to reforming the system through scientific planning.[3]

Despite their preferences for stability and planning, there is little indication that Party Secretary Brezhnev or Premier Kosygin came into power with a cohesive plan for the future of economic management. But that should not suggest that the duo was oblivious to real problems or bereft of potential solutions. According to the economist Iurii Firsov, a former assistant to the Premier, Kosygin in particular was eager to tackle economic issues. Kosygin had learned a great deal about the Soviet economy during his extensive time in the Soviet government. Between 1948 and 1964 he had served, at

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[1] "Soobshchenie o Plenume Tsentral;nogo Komiteta KPSS," *Pravda* 16 October 1964, 1; "V Prezidiume Verkhnovnogo Soveta SSSR," *Pravda* 16 October 1964, 1.
[2] Susanne Schattenberg, *Staatsman und Schauspieler im Schatten Stalins: Eine Biographi*e (Cologne: Böhlau, 2017).
[3] P. G. Pikhoia and A. K. Sokolov, *Istoriiia sovremennoi Rossii: Kriziz kommunisticheskoi vlasti v SSSR i rozhdenie novoi Rossii, konets 1970-x – 1991 gg.* (Moscow: ROSSPEN, 2008), 34.

different times and for various lengths, as Minister of Finance, Minister of Light Industry, Chairman of the State Planning Committee (Gosplan), Chairman of the Commission of the Presidium of the Council of Ministers on Prices, and Deputy Chairman of the Council of Ministers. By the time he took over as Premier, Firsov continues, Kosygin was convinced that some level of enterprise independence could help the economy grow.[4] One-time Gosplan chief Nikolai Baibakov supports Firsov's recollection. Baibakov recalls that within just a couple of months of ascending to the upper echelons of power, Kosygin put together a team – including Gosplan associate A. V. Bachurin – to research methods to improve planning. Kosygin had to fight for his agenda. Baibakov recalls that, at least initially, second party secretary Nikolai Podgornyi and Leonid Brezhnev saw no need to pursue reform.[5]

From his first days as Premier, Kosygin received numerous notes on the topic of economic management in both Eastern Europe and the Soviet Union. Translated and delivered to Kosygin in late 1964, one article published in a Czechoslovakian newspaper theorized that distributing the wage fund among a smaller number of workers would more effectively solve various labor issues.[6] Another, a nineteen-page discussion of the

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[4] Iu. Firsov, "Kosygin i ego vremia," in *Fenomen Kosygina: Zapiska Vnuka*, ed. Aleksei Gvishiani (Moscow: Fond Kultury "Ekaterina," 2004), 158-232. Kosygin recognized that a formidable barrier stood in the way of reform. As in the United States, the Cold War, even in the era of "peaceful coexistence," limited potential investments in Soviet infrastructure. Referencing the tremendous resources sunk into the Soviet military, Firsov testifies that Kosygin complained that accomplishing his goas was difficult in part because the Cold War was "squeezing all of the juice out of [the Soviet economy]."

The most comprehensive telling of Kosygin's life and career remains the popular biography Viktor Andrianov, *Kosygin* (Moscow: Molodaia gvardiia, 2003).

[5] N. K. Baibakov, *Ot Stalina do El'tsina* (Moscow: GazOil Press, 1998), 170-173.

[6] *Gosudarstvennyi arkhiv Rossiisskoi Federatsii* (GARF) *fond* (f.) 5446 (Collection of the Council of Ministers), *opis'* (op.) 99, *delo* (d.) 11, *listy* (ll.). 51 "Briefly About the Principles of Improving Planned Management of the National Economy of Czechoslovakia" (no date provided). The article had been published the newspaper *Rude pravo* on 17 October 1964. See GARF f. 5446, op. 99, d. 11, ll. 9-46 "On the Draft Principles for Improving the Planned Management of the National Economy" (17 October 1964).

"new economic system" in the German Democratic Republic (DDR), was delivered to Kosygin in February 1965 by Petr Abrasimov, the Soviet ambassador to the DDR. The report noted that reform in the DDR was motivated by the need to improve labor productivity, profitability, and the quality of goods. As a part of the new economic system, profits were used to form four separate enterprise funds: the technology fund supported research and development; the profit contribution fund was responsible for the replenishment of working capital; the director's fund paid out bonuses to workers; and the credit reserve fund was formed to assist enterprises in times of economic uncertainty. Abrasimov's memo closed by observing that, by way of comparison with 1963, in 1964 the volume of industrial production in the DDR increased by 6.7 percent while labor productivity in industry grew by 6.5 percent. The "leading industries" expanded at an even more impressive rate: the DDR's chemical industry – which had been a focal point of investment since the late 1950s – grew by eight percent.[7] The features of the economic system Abrasimov described would have been easily recognizable to Kosygin. As the political scientist Jeffrey Kopstein has argued, the goal of the DDR's new economic system was to put Evsei Liberman's theories into practice.[8]

Memos from Soviet researchers were more speculative. Sent to Kosygin in the winter of 1965 by a team of scholars working in the Institute of Economics of the

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[7] GARF f. 5446, op. 99, d. 11, ll. 199-219 "On the Course of the Application of the New Economic System of Planning and Management of the National Economy in the GDR" (2 February 1965).

On the growth of the chemical industry in the DDR – which itself was made possible by oil and gas supplied by the Soviet Union – see Harald Bethelt, *Chemiestandort Deutschland: Technologischer Wandel, Arbeitsteilung und geographische Strukturen in der chemischen Industrie* (Berlin: Ed. Sigma, 1997), 124.

[8] Jeffrey Kopstein, *The Politics of Economic Decline in East Germany, 1945-1989* (Chapel Hill: University of North Carolina Press, 1997), 41-73.

On the "new economic system" in the DDR see André Steiner, *Von Plan zu Plan: Eine Wirtschaftsgeschichte der DDR* (Munich: Deutsche Verlags-Anstalt, 2004), 123-164.

Academy of Sciences, one report called for a system that would entail a "flexible combination of central planning with economic initiative and self-government of enterprises and their associations, with…[the] development of forms of economic incentives." No doubt aware of the DDR's new economic system, the authors also argued that enterprises ought to be responsible for "the establishment of [their own] forms of basic payment and bonus systems." The source of these payments would be profits, which also should be used to provide "for the socio-cultural and production needs" of the enterprise. The team argued that neither profits nor the rewards that followed from them should be pursued capriciously. "The increase in the mass of profits," it argued, "in large part occurs as a result of an increase in production." To balance the quest for greater efficiency with the need for progress, the team suggested that material incentives – both wages and premiums – be connected first and foremost to "the stimulation of intensive technical progress of the development of production."[9]

Kosygin appears to have taken these dispatches seriously. The first sign that real changes were on the horizon appeared in the spring of 1965. At a Gosplan meeting held on 19 March, Kosygin delivered a rambling but vicious critique of Soviet planning. Accusing planners of pursuing "economically illiterate" and "subjective" priorities that neglected national interests, Kosygin essentially blamed poor planning for the sad state of agriculture, the dearth of consumer goods, and gross discrepancies between the productivity of various economic sectors. Economists, he took pains to mention, had been complaining about this latter point for years. Extreme centralization, Kosygin continued,

[9] GARF f. 5446, op. 99, d. 1, ll. 126, 134, 139, 141-142 "On Urgent Measures to Improve the System of Economic Management of the Branches of Material Production in the USSR (Management, Centralized Planning, Cost Accounting, Commodity-Money Turnover, Economic Incentives)" (25 February 1965).

had two contradictory, but equally detrimental, effects. While some regional officials responded with unnecessary deference to centralized authorities, others adopted a "localist" position that favored their own region. Meanwhile, planners shunned real economic knowledge and adopted a "bureaucratic" approach to their duties, designing plans entirely "on the basis of the dynamics of the proceeding period" – in other words, the "ratchet principle." Everyone, it seemed to Kosygin, ignored what the national economy actually needed.

Kosygin demanded change. Far too many officials, he argued, assumed that eliminating the economic councils – themselves overrun by localist tendencies – and reinstituting the branch ministries would be a panacea. The Premier rejected this view and instead insisted the adoption of a "scientific" approach to planning. By this he meant that planners should study the economy's real state, emphasize the development and implementation of new technologies, and incorporate the input of local actors to pursue the nation's economic goals. The most important economic ambitions for Kosygin included the rational use of material resources, increased labor productivity, meeting the demand for consumer goods, the "normal" circulation of money, and the improvement of the population's living standards. Except on the issue of remuneration, Kosygin's tirade was devoid of concrete suggestions. "Labor payments," he posited," must be made directly dependent on the growth of labor productivity and the increase in the output of essential types of products."[10]

It is fitting that it was Alexei Kosygin who, at a plenum of the Central Committee

[10] "Povyshenie nauchnoi obosnovannosti planov – vazhneishaia zadacha planovykh organov: Vystuplenie tovarishcha A. N. Kosygin ana zasedanii Gosplana SSSR 19 Marta 1965 goda," *Planovoe khoziaistvo* 4 (April 1965): 3-10.

of the Communist Party on 27 September 1965, delivered the speech that at last inaugurated economic change. The "Kosygin Reform," as the set of policies he described are typically called, were very much a culmination of the changes that began in the late 1950s. In this sense, Nikita Khrushchev's tinkering was vindicated.[11] The Kosygin Reform's primary aim was to improve planning, economic management, and the provision of material incentives through growing the power and influence of the enterprise. An oft-quoted phrase effectively summarizes the intentions of the Kosygin Reform: "[i]t is necessary to abandon the customary notion that in the relations between the guiding economic agencies and the enterprises, the former have only rights and the latter only obligations."

Kosygin reaffirmed Khrushchev's commitment to growing the economy through technology, training, and re-thinking labor organization. The chemical industry was singled out not only because of its potential to contribute to this endeavor, but also because it had thus far failed to fully take advantage of existing technologies. To ensure that skilled workers used machines more effectively, Kosygin charged the trade unions with both improving socialist competition campaigns as well as spreading the scientific organization of labor (NOT). This was significant. Chapter two showed how, during the inter-war period, socialist competition essentially replaced NOT as the central mechanism for instilling labor discipline. Kosygin in effect sanctioned the development of a form of NOT that functioned in conjunction with, rather than in opposition to, socialist competition. This was only possible because the goals of the production regime,

[11] G. Kovalenko, "Reformy upravleniia narodnym khoziaistvom SSSR serediny 1950-x – 1970-x godov," *Voprosy istorii* 6 (June 2008): 37-47.

and therefore of socialist competition, had changed to resemble those of NOT. Efficiency, not gross production, was the new goal.

The formation of enterprise funds, obviously inspired in part by Evsei Liberman in theory and the DDR's "new economic system" in practice, was no less important. Prior to the reform, central planners developed target assignments for the rate of labor productivity, quantity of workers, average wages, and the size of the wage fund at every factory. By granting the enterprise the right to control all but the wage fund, the reform gave directors significant leeway to experiment with accounting metrics. To motivate them to produce more efficiently, Kosygin suggested that enterprises be allowed to control some of the profits they accrued. Three separate funds – one for material incentives, which would provide bonuses to management and workers; another for finance socio-cultural and housing development; and a third for production development, which essentially meant technological growth – were to be established in each enterprise functioning under the conditions of the reform. The size of these funds was to be directly connected to four factors: the effectiveness of the use of production capital, increase in sales, increase in profits, and the quality of output. In an effort to reduce labor turnover, bonuses were to be paid monthly but also in a lump sum at the end of every year. While Moscow would continue to control the size of the base wage, workers could earn more through the improved performance of the enterprise.

Kosygin's initial statement did not explain how the economic program would be put into practice. This was by design. According to him, the reform could not be "extended mechanically." Due to the growing complexity of the Soviet economy, it was necessary to consider the specific properties of each branch of production before

implementing policy changes. This sort of analysis was be done with the help of the branch ministries, which, Kosygin announced, would immediately be recreated to supplant Khrushchev's oft-maligned economic councils. Study of production and the reform's potential in each branch, he concluded, "will be carried out gradually."[12]

The Kosygin Reform began to take a more definitive shape with two decrees issued by the Council of Ministers on 4 October 1965. The first order, "On the Improvement of Management, Planning, and Stimulation of Industrial Production," reduced – from around three-dozen to eight – and clarified centrally determined success indicators. Sales and profits replaced gross tonnage as the most significant benchmarks for measuring enterprise performance. Profits, in turn, were to serve as the source for establishing the three enterprise funds Kosygin discussed in his initial speech.[13] "The Role of the Socialist State Enterprise," the second decree, recognized the enterprise as the "main link" in the Soviet economy. Enterprise directors were permitted to control wages within parameters established by existing wage scales and the wage fund; they were likewise given the power to provide workers with additional material incentives. With the agreement of the trade union committee, directors could also dismiss enterprise

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[12] A. N. Kosygin, "Ob uluchshenii upravleniia promyshlennost'iu, sovershenstvovanii planirovaniia i usilenii ekonomicheskogo stimulirovaniia promyshlennogo proizvodstva: Doklad na Plenume TsK KPSS 27 sentiabria 1965 goda," in *A. N. Kosygin: Izbrannye rechi i stat'i* (Moscow: Politizdat, 1974), 259-298.

Indeed, the Ministry of the Chemical Industry was reestablished on 26 October 1965. See *Gosudarstvennyi arkhiv Tul'skoi oblasti* (GATO), *fond* (f.) R – 3469, *opis'* (op.) 2, *delo* (d.) 304, *listy* (ll.) 14-15(ob.) "On the Structure and Staff of the Central Office of the Ministry of Chemical Industry of the USSR" (26 October 1965).

On inter-war socialist competition and NOT see Samuel Lieberstein, "Technology, Work, and Sociology in the USSR: The NOT Movement," *Technology and Culture* 16, 1 (Jan. 1975): 48-66.

[13] "O sovershenstvovanii planirovaniia i usilenii ekonomicheskogo stimulirovaniia promyshlennogo proizvodstva," in *Resheniia partii i pravitel'stva po khoziaistvennym voprosam*, eds. K. U. Chernenko and M. S. Smirtiukov (Moscow: Gospolitizdat, 1968), 5: 658-684. Here, 661-662, 666-668. The number of success indicators is drawn from Gertrude Schroeder, "Soviet Economic 'Reforms:' A Study in Contradictions," *Soviet Studies* 20, 1 (July 1968): 1-21. Here, 4.

personnel. Finally, factory authorities were permitted to transfer workers between shops depending on production demands.[14]

The following month the Council of Ministers established the Interdepartmental Commission under Gosplan on the Transfer of Industrial Enterprises to the New System of Planning and Economic Incentives (MVK). From its first meeting in November 1965, MVK's priority was to establish "methodological guidelines" for the transfer of enterprises to the new system.[15] Under the chairmanship of Gosplan veteran A. V. Bachurin, the assignment was completed within a couple of weeks. The power to decide which enterprises would apply the reform and when was turned over to the reestablished branch ministries. The guidelines clarified that the ministries' most significant tasks in applying the reform included:

> the improvement of effectiveness of production and capital construction, the maximization of the use of existing production funds, the acceleration of the growth of the productivity of labor, the improvement of the quality of production, and an increase in the output of products necessary for the national economy at the lowest cost.

Those enterprises selected to transition were charged with fulfilling "significant preparatory work" to ensure the success of the reform. This included, among other things, the enhancement of the basic production funds and their usage; the utilization of up-to-

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[14] "Polozhenie o sotsialisticheskom gosudarstvennom proizvodstvennom predpriiatii," in *Resheniia partii i pravitel'stva po khoziaistvennym voprosam*, 5: 691-716. Here, 5: 691, 708-713.

[15] *Rossiisskii gosudarstvennyi arkhiv ekonomii* (RGAE), *fond* (f.) 4372 (Collection of the State Planning Committee of the Council of Ministers of the USSR [Gosplan of the USSR]), *opis'* (op.) 66, *delo* (d.) 714, *listy* (ll.) 1-4 "Minutes of Meetings of the Commission under the USSR State Planning Committee on the Transfer of Industrial Enterprises to the New System of Planning and Economic Incentives, formed by the Decision of the Council of Ministers of the USSR on 24 November 1965" (27 November 1965).

Some pre-conditions were made clear early on. Finance Minister Vasilii Garbuzov stated plainly in December 1965 that to qualify for transfer, enterprises would need to demonstrate "adequate profitability, a stable financial position, normal conditions for the supply and marketing of output, and the proper level of economic work." See "O Gosudarstvennom biudzete SSSR na 1966 god i ob ispolnenii gosudarstvennogo biudzeta SSSR za 1964 god," *Pravda* 8 December 1965, 4-5. Here, 4.

date science and technology in the production process; the introduction of NOT; the application of economic managerial methods; the growth in the rate of the productivity of labor; and the economic literacy of every worker.[16] It was a lofty set of ambitions.

Initially, MVK planned to apply the reform incrementally. Comprised of up to thirty enterprises in select industries including metallurgy, machine construction, chemicals, light industry, food industry, and building materials located in urban spaces – Moscow, Leningrad, Kiev, Volgograd, Minsk, Sverdlovsk, and Novosibirsk – the first group was scheduled to apply the new system from 1 January 1966. From there, the reform would spread to more than 100 enterprises beginning in April and to between 200 and 800 in July. By the third quarter of 1966, all enterprises in the Soviet Union were to be in the process of transferring to the new system. On 10 December MVK organized a group comprised of representatives from Gosplan, the Ministry of Finance, the State Committee of the Council of Ministers of the USSR on Questions of Labor and Wages (Goskomtrud), the State Bank, the All-Union Central Council of Trade Unions (VTsSPS), the Central Statistical Administration (TsSU), and others, to nominate enterprises for transfer. Within a week, MVK began receiving proposals.[17]

While MVK handled macro-issues of the transition, details were left to others. In February 1966 Goskomtrud and the VTsSPS developed guidelines for bonus payments

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[16] RGAE f. 4372, op. 66, d. 1461, ll. 2-4 "Methodological Guidelines for the Transfer of Enterprises, Associations and Industries to the New System of Planning and Economic Stimulation" (2 December 1966).

[17] RGAE f. 4372, op. 66, d. 714, ll. 1-4, 10-11 "Minutes of Meetings of the Commission under the USSR State Planning Committee on the Transfer of Industrial Enterprises to the New System of Planning and Economic Incentives, formed by the Decision of the Council of Ministers of the USSR on 24 November 1965" (10 December 1965), 14-15 "Minutes of Meetings of the Commission under the USSR State Planning Committee on the Transfer of Industrial Enterprises to the New System of Planning and Economic Incentives, formed by the Decision of the Council of Ministers of the USSR on 24 November 1965" (17 December 1965).

under the reform. Workers' bonuses were pinned to three indices: improvement of the quality of production, increase in the productivity of labor, and economization of the use of raw materials and tools. Workers would receive these premiums from a combination of the wage fund and a separate, material incentive fund. The latter was also to serve as the source of bonus payments to engineering-technical workers (ITR) and white-collar workers (*sluzhashchii*) for fulfilling or overfulfilling production plans. In accordance with the decree issued on 4 October, profit served as the source of rubles for these funds. Bonus payments for enterprise management were contingent on satisfying target indicators and following proper protocol for administering bonus payments to workers, ITR, and white-collar employees. Henceforth, enterprises were also given the right to provide additional compensation to workers for length of service or performing particularly arduous duties.[18]

Social scientists, meanwhile, had continued to develop NOT. Edited by P. F. Petrochenko, a labor economist at the Siberian branch of the Academy of Sciences, and collectively written by a team of social scientists and industrial leaders from the same region, the 1965 *Problems of the Scientific Organization of Labor* advocated for updating NOT's conceptual underpinnings to meet new challenges. Once the foundation of NOT, Taylorism, with its trust in a near-infinite division of labor into increasingly specialized and repetitive tasks, had become antiquated. We have already seen that, by the mid-1960s, some economists argued that the persistent of division of labor had reached an

[18] "Metodicheskie ukazaniia po razrabotke Polozhenii o premirovanii rabotnikov otdel'nykh promyshlennykh predpriiatii, perevodimykh na novuiu sistemu planirovaniia i ekonomicheskogo stimulirovaniia promyshlennogo proizvodtsva v 1966 godu," *Ekonomicheskaia gazeta* 7 (Feb. 1966): 31-32; A. Volkov, "Trud, Pribyl', Premiia," *Izvestiia* 12 Feb. 1966, 1.

inflection point in the Soviet Union. Economists such as S. Veinberg, it showed, posited that creating thousands of jobs, each with more and more specialized tasks, could no longer be economically justified. Petrochenko and his team agreed. While consistently subdividing the labor process had initially sped up the production of principle products, it also required the hiring and training of auxiliary workers that ultimately cluttered the technological chain. As one writer put it: "it is necessary to face the fact that reducing the time to perform the main work does not reduce the production cycle of manufacturing products." To deal with this problem, a number of Soviet enterprises had begun experimenting with assigning certain workers tasks – such as equipment adjustment, technical maintenance, and minor repairs – usually associated with auxiliary personnel.[19]

In June 1966 the scientific research institute of Goskomtrud developed a set of methodological recommendations to encourage the spread of NOT. The scientific research institute suggested expanding NOT's parameters to include assigning appropriate rest schedules, improving workers' qualifications, locating labor reserves, the provision of moral and material incentives, as well as workplace hygiene and safety. As the institute put it, "NOT is based on economic, technical, biological, social and other sciences." Like the scholars from Siberia, the scientific research institute argued that advances in mechanization and automation meant that jobs had become increasingly "interconnt[ed]." To adapt to these conditions, it encouraged the "develop[ment] of collective forms of labor" and the "combination of professions." The scientific research institute envisioned a factory wherein much of the production process was handled by

[19] P. F. Petrochenko, ed. *Voprosy nauchnoi organizatsii truda na promyshlennom predpriiatii* (Moscow: Mysl', 1965), 29-30, 35-36.

machines, while equipment maintenance and supervising production fell to workers. To motivate workers to take on these responsibilities, the institute proposed giving individual enterprises the power to utilize systems of wages appropriate for their own particular circumstances. Workers participating in forms of NOT that were of "great economic effect," especially those willing to take on other professions, ought to be rewarded; to finance these payments, the scientific research institute suggested the creation of an enterprise-level fund developed from the savings accrued from such actions.[20]

MVK's preliminary plan was soon altered. The first group to transfer to the new system of planning and economic incentives included forty-three enterprises representing seventeen different industrial ministries.[21] None were accepted without at least some scrutiny on the part of the selection committee. The transfer of several enterprises to the new system was postponed for a variety of reasons. A rubber factory in Moscow was not allowed to apply the reform in early 1966 because, under its plan for that year, both labor productivity and profitability were actually scheduled to decrease. One boring-machine plant, also in Moscow, was prevented from doing so because it had yet to establish a plan for production and production cost. Failure to adequately prepare for the establishment of incentive funds prevented the transfer of one instrument-making plant under the Ministry

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[20] GARF f. 5451 (Collection of the All-Union Central Council of Trade Unions), op. 61, d. 31, ll. 86-93, 111, 114 "Transcript of the Meeting of the All-Union Central Council of Trade Unions on Economic Problems: Discussion of Methodological Recommendations for the Development and Implementation of the Scientific Organization of Workers' Labor at Industrial Enterprises" (20 January 1966).

[21] RGAE f. 4372, op. 66, d. 714, l. 28 "Minutes of Meetings of the Commission under the USSR State Planning Committee on the Transfer of Industrial Enterprises to the New System of Planning and Economic Incentives, formed by the Decision of the Council of Ministers of the USSR on 24 November 1965" (7 January 1966); GARF f. 5446, op. 100, d. 7, l. 57 "Organizational Action Plan for Transferring Industry to the New System of Planning and Economic Incentives" (14 March 1966); "Shagi reforma," *Izvestiia* 31 January 1966, 2.

of the Electronics Industry.[22] By early 1966, MVK's initial scheme was replaced with a more conservative one that aspired to transfer enterprises and entire industries over a period of years rather than months.[23] As table 4.1 shows, even this plan did not quite work out.

Table 4.1
The Spread of the Kosygin Reform, 1965-1968

Year	Number of enterprises	Their share of industry (by percentage)			
		By number of enterprises	By volume of production	By number of personnel in industrial production	By profit
1966	704	1.5	8	8	16
1967	7,248	15	37	32	50
1968	26,850	54	72	71	81

Source: *Narodnoe khoziaistvo SSSR v 1968 g.: Statisticheskii ezhegodnik* (Moscow: Statistika, 1969), 184.

Early proposals scheduled the chemical industry to adopt the Kosygin Reform between July 1967 and January 1968 depending on the ministry's preparations.[24] To "gain experience" prior to the mass transition, in November 1966 the Ministry of the Chemical Industry selected a pilot group of twenty-six chemical enterprises to transfer to the new system on 1 January 1967. Seven of these factories were ultimately removed from the list. The Kalininskii artificial fibers plant, for example, violated MVK's

[22] RGAE f. 4372, op. 66, d. 714, ll. 17-18 "Minutes of Meetings of the Commission under the USSR State Planning Committee on the Transfer of Industrial Enterprises to the New System of Planning and Economic Incentives, formed by the Decision of the Council of Ministers of the USSR on 24 November 1965" (18 December 1965), 20
"Minutes of Meetings of the Commission under the USSR State Planning Committee on the Transfer of Industrial Enterprises to the New System of Planning and Economic Incentives, formed by the Decision of the Council of Ministers of the USSR on 24 November 1965" (20 December 1965), 22 "Minutes of Meetings of the Commission under the USSR State Planning Committee on the Transfer of Industrial Enterprises to the New System of Planning and Economic Incentives, formed by the Decision of the Council of Ministers of the USSR on 24 November 1965" (21 December 1965).
[23] GARF f. 5446, op. 100, d. 7, ll. 1-3 "On the Plan of Organizational Measures for the Transfer of Industry to a New System of Planning and Economic Incentives of Industrial Production" (12 February 1966).
[24] GARF f. 5446, op. 100, d. 7, l. 43 "Plan of Organizational Measures for Transfer to the New System of Planning and Economic Incentives" (March 1966).

methodological guidelines for transfer by requesting funds from the Construction Bank to finance the creation of its incentive fund. The remaining nineteen factories were given permission to move ahead. The Shchekino Chemical Combine was among them.[25]

At the Shchekino Chemical Combine, the "significant preparatory work" leading up to the transfer to the new system of planning and economic incentives started in the regional press. Chief economist Vera Slepykh began preparing the workers of the Shchekino Chemical Combine for reform almost immediately following Kosygin's September speech. In an article published in *Banner of* Communism, the organ of the Shchekino City Communist Party, on 19 October 1965, Slepykh summarized the most general goals of the Kosygin Reform. She also took great care to explain to workers why they should be concerned with maximizing enterprise profitability. "The better [profit] works," she wrote, "the more funds will be available for the expansion of production, [improving] living standards, and material incentives." This, Slepykh continued, meant that working responsibly was in everyone's interest. "The enterprise that better uses its fixed assets and working capital," Slepykh concluded, "will have more profit with which to incentivize employees."[26]

Two months later, Slepykh provided a much more detailed discussion of the conditions of reform for readers of *Khimik*. She also made clear that the path ahead would not be easy. For one thing, the new method of formulating profit had a dramatic effect on the combine's planning figures. Under the pre-reform system, profitability was calculated

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[25] RGAE f. 459 (Collection of the Ministry of the Chemical Industry), op. 1, d. 1937, ll. 2-7 "The Results of the Transfer of 19 Enterprises to New Conditions of Planning and Economic Incentives from 1 January 1967" (16 March 1967).
[26] V. Slepykh, "Polnee ispol'zovat' proizvodstvenny fondy," *Znamia kommunizma* 19 October 1965, 2.

as the relationship between profit and the total cost of output. Using this metric, the Shchekino Chemical Combine planned to attain a profitability rate of seventeen percent. By contrast, the reform-era formula – the relationship between profit and the value of production assets – planned for a profitability rate that would not exceed 6.3 percent. This suggested a veritable warehouse full of unused or underused equipment. As chapter one has already shown, the economic A. I. Kats's 1964 report argued that this situation was endemic in the Soviet chemical industry. Slepykh elaborated. Only half of the enterprise's fixed assets manufactured commercial products, she reported, and just thirty-six percent of its machinery was used to produce profitable goods. As a consequence, Slepykh argued, the enterprise had no choice but to attempt to sell off excess means of production.[27]

Improving the organization of labor was also requisite. But in early 1966, Slepykh was less concerned with labor organization itself than she was with management's ability to perform the sort of quantitative analysis necessary to oversee such a task. Alone, economists could not provide the conditions for a more efficient labor performance; enterprise directors, chief engineers, chief mechanics, managers, and others, she posited, would also have to "direct production activities in such a way that it gives the greatest effect." Hence, the combine's university of economics – which, it is worth repeating, was founded by Slepykh shortly after her arrival at the factory – had started with pursuing the most rudimentary of goals: to teach its students how to count economically, competently interrogate the enterprise's performance, and develop solutions independently. To this end, a new course in mathematical calculations was designed. Special attention was paid

[27] V. Slepykh, "Effektivnee ispol'zovat' fondy," *Khimik* 8 January 1966, 1.

to teaching enterprise administration how to calculate enterprise profitability and return on capital. Perhaps drawing on her frustrating experience in Polevskoi, Slepykh argued that the combine's efforts to educate its administrative staff should be replicated elsewhere. Managerial cadres in every industry in the region, she insisted, could benefit from this sort of training.[28]

The concrete task of improving labor organization fell, of course, to NOT. A NOT laboratory was established at the Shchekino Chemical Combine in August 1965. Staffed by engineers and technical workers with theoretical and practical training, the laboratory was charged with researching and developing recommendations for, among other things, separating the tasks of basic workers, i. e. workers directly involved in production, from those of auxiliary workers, combining professions throughout the enterprise, forming production brigades, improving working conditions (including safety), and designing methods for providing workers with more effective moral and material incentives.[29]

The head of the Shchekino Chemical Combine's research laboratory N. Dobrutskii and G. Iakimenko, its chief of NOT, explain how the scientific organization of labor was implemented at individual workstations. After work brigades were formed, NOT workers conducted a thorough analysis of labor organization. From there, a plan was created to improve work practices; this plan could address any number of responsibilities under the purview of NOT. The final step included putting the plan into

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[28] V. Slepykh, "Bolshe vnimaniia organizatsii truda," *Khimik* 12 February 1966, 1; V. Slepykh, "Khimiki izuchaiut ekonomiku," *Znamia kommunizma* 5 March 1966, 1.
[29] GATO f. R – 3469 (Collection of the Shchekino Association [*ob"edinenie*] "Azot"), op. 2, d. 302, sv. 38, ll. 168-172 "About the Laboratory for the Scientific Organization of Labor (NOT) of Industrial Enterprises of the Prokskii *Sovnarkhoz*" (6 August 1965); V. Konstantinov, "Na predpriiatie prikhodit NOT," *Znamia kommunizma* 15 December 1965, 2.

action. Implementation was the responsibility of teams – comprised of economists, norm (quota)-setters, and others – formed under the leaders of various shops in the combine. According to Dobrutskii and Iakimenko, their work was not always welcomed. While the first urea, water supply, and oxygen shops had eagerly designed NOT plans and started to analyze the conditions of labor by January 1966, the first ammonia shop had thus far refused to participate.[30] Even without universal participation, NOT continued to expand. By July 1966, eleven different shops were actively implementing NOT measures.[31]

Likewise, NOT advocates propagandized about the importance of learning multiple jobs. One article explained to workers that installers who could operate cranes and cut metal, for example, were able to prevent unexpected delays in work. Combining duties was becoming the new norm. "In the current five-year plan, a period of technological progress," the op-ed read, "it is impossible to limit oneself to the narrow framework of one specialty, to understanding one thing."[32] This was a marked change for a system that had produced dozens of reference books that meticulously delineated the specific responsibilities of thousands of jobs throughout the Soviet Union.

The press also eagerly covered the reform's early successes. A two-part article written by MVK deputy head D. Tsarev and published in *Banner of Communism* in July 1966 spoke of the importance of every worker's contribution to the economic success of enterprises undergoing transition. Those with experience, he continued, considered adequate time to prepare to be equally crucial to improved performance. Tsarev also explained how the new method of planning and economic incentives benefited enterprise

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[30] N. Dobrutskii and G. Iakimenko, "Plany NOT – na rabochie mesta," *Khimik* 15 January 1966, 1-2.
[31] A. Strigaleva, "Nauchnaia organizatsiia truda – vazhneishaia zadacha," *Khimik* 9 July 1966, 1.
[32] "Kazhdomu rabochemu – smezhnuiu professiiu," *Znamia kommunizma* 12 March 1966, 1.

personnel. The Volgograd Metallurgical Plant, for example, planned to use the socio-cultural fund to build a kindergarten, expand the Komsomol's pioneer camp, and provide workers with vouchers for sanitoriums.[33] Published in the same newspaper, an editorial on the Voskresensk Chemical Combine, the first chemical factory to adopt the reform, stressed the freedom of workers in shops to develop technical and financial planning. Free from excessive centralized constraints, the article claimed, workers sought to do more. Each shop in the combine voluntarily adopted a counterplan – a set of target assignments designed by enterprises and industrial ministries that usually exceeded those initially assigned by Gosplan – to stimulate production. The Voskresesnk works was indeed outstripping expectations. In the first quarter of 1966, the combine's profit grew by twenty-eight percent over the previous year. Its production output per ruble of fixed assets, meanwhile, increased by almost five percent.[34]

The tenacity of the propaganda campaigns in Shchekino's regional press was matched by substantial work at the enterprise level. According to Vera Slepykh, by the end of 1966, staff had performed a thorough inventory of assets, a study on the combine's productive capacity, and a comparative analysis of the performance of other similar plants. A concrete itinerary was created that included a daily schedule for fulfilling the plan for production and profits as well as precise figures for bonus payments. All shop supervisors completed a thirty-six-hour program outlining the specifics of the new

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[33] D. Tsarev, "Pervye uspekhi: Obshchaia zainteresovannost'," *Znamia kommunizma* 6 July 1966, 2-3; D. Tsarev "Pervye uspekhi: Obshchaia zainteresovannost'," *Znamia kommunizma* 9 July 1966, 2-3.
[34] "Opyt khimikov Voskresenska," *Znamia kommunizma* 13 July 1966, 2. On the "counterplan" see "Daesh' vstrechnyi," *Izvestiia* 11 September 1974, 1.

On the transfer of the Voskresensk Chemical Combine see RGAE f. 4372, op. 66, d. 714, l. 17 "Minutes of Meetings of the Commission under the USSR State Planning Committee on the Transfer of Industrial Enterprises to the New System of Planning and Economic Incentives, formed by the Decision of the Council of Ministers of the USSR on 24 November 1965" (18 December 1965).

conditions while classes on economics were offered for leading workers. To witness the new system in action, some workers were taken on a tour of the Voskresensk Chemical Combine.[35] A. A. Mokin, the secretary of the enterprise's party committee added that 9,000,000 rubles' worth of idle equipment had been written off.[36]

In conjunction with the enterprise's research laboratory, Slepykh also planned and oversaw a massive effort to standardize enterprise operations. This included regulations for the number of workers in shops and the development of technically-substantiated norms throughout the Shchekino Chemical Combine. Consulting materials collected from other enterprises, Slepykh and her team created standards for the number of repair and maintenance personnel in one of the combine's instrumentation service shops. Similar figures were developed for electrical fitters in mineral fertilizer production. Production norms were established for the maintenance of technological equipment by primary workers in urea production; time norms were created for electrical repair work in another of the combine's factories. The research laboratory worked with norm-setters to take 366 photographs of 1,058 workers during the workday. The photos were used to advise the managers of workshops on how to best organize labor. Slepykh's team developed a reference book based on this work for use at other enterprises.[37]

Tasked with implementing a major reform designed to promote efficiency while simultaneously expanding production capacity, the Shchekino Chemical Combine was put in a difficult position. In January 1966, the factory began producing caprolactam.[38]

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[35] GATO f. R – 3469, op. 2, d. 397, ll. 122-123.
[36] "Samoe vazhno, samoe glavnoe," *Znamia kommunizma* 27 November 1966, 2.
[37] GATO f. R – 3469, op. 2, d. 397, ll. 254-256.
[38] "Dadim Rodine kaprolaktam!," *Khimik* 22 Jan. 1966, 1

Three months later, it inaugurated the production of methanol.[39] By August, the enterprise's second ammonia line was put into operation.[40] The following month, the pressure conversion workshop was expanded.[41] The change was rapid and dramatic. Some wrote that new shops appeared in construction zones seemingly overnight.[42] Petr Sharov, the combine's director, was quite proud. In an article published in *Banner of Communism* in March 1966, he boasted that "in the last five years, the staff of the [Shchekino Chemical Combine] has increased its output by four and a half times" while the physical size of the enterprise grew by several kilometers.[43] Even in capital-intensive industries, expansion often entails hiring more labor. Figure 4.1 demonstrates that the number of workers at the combine grew considerably between Kosygin's speech and the start of the reform.

Work safety remained a serious issue in the months leading up to the adoption of the new system of planning and economic incentives. In March 1965 administrators explained their concern about several hazards at the combine. I. A. Minin, the chairman of the trade union committee, noted that volatile pipes in the mineral fertilizer plant had not been painted the proper colors to warn workers of the danger they presented. The ventilation system in the same plant, he continued, "does not work at all, or works poorly." G. M. Rodnitskii, the head of the power supply department, testified that drainage systems from high-voltage cable trenches were clogged. If rainwater was to

[39] V. Popov, "Idet methanol," *Khimik* 2 April 1966, 1.
[40] GATO f. R – 3469, op. 2, d. 397, l. 148; R. Suvorov, "Napriazhennye dni," *Khimik* 13 August 1966, 1.
[41] V. Trubnyi, "Shchekinskii khimkombinat," *Znamia kommunizma* 11 September 1966, 1.
[42] N. Seregin, "Na Shchekinskom khimcheskom," *Znamia kommunizma* 29 December 1965, 2.
[43] P. Sharov, "Rubezhi khimikov," *Znamia kommunizma* 16 March 1966, 2.

flood the trenches, Rodnitskii warned, "an accident [could] happen at any time."[44] Table

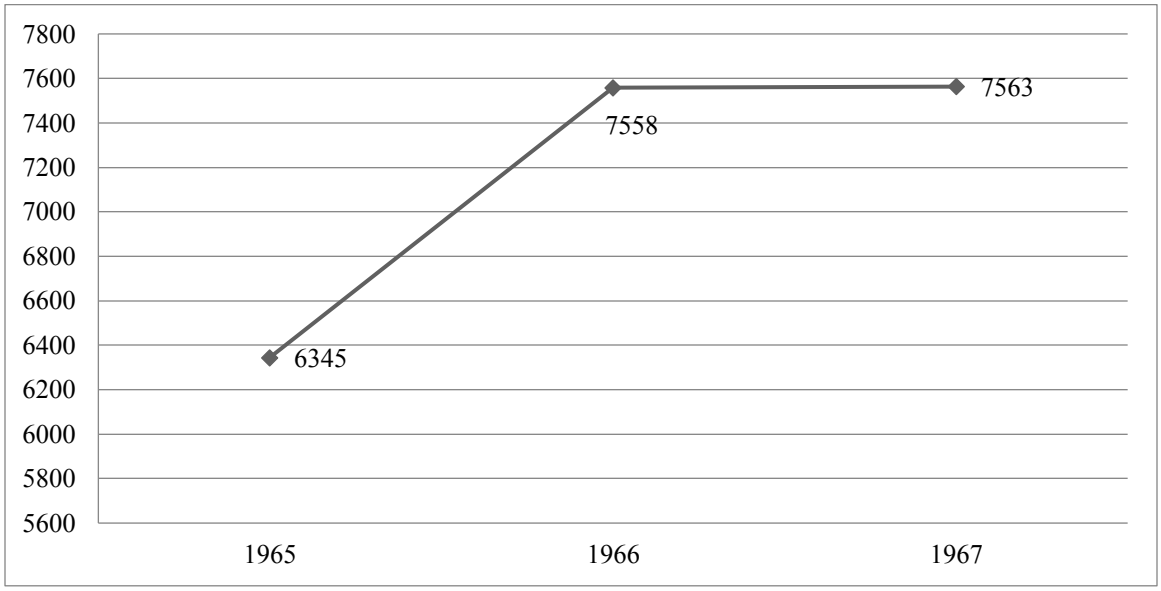

Figure 4.1
Size of Personnel at Shchekino Chemical Combine, 1965-1967
Source: GATO f. R – 3469, op. 2, d. 397, ll. 259 "Annual Report of the Enterprise p/ia v-8918 on Main Activities in 1966" (undated); GATO R– 3469, op. 2, d. 484a, l. 229 "Yearly Report of Enterprise p/ia v-8919 on Basic Activities in 1967" (23 April 1968).

4.3 shows that the total number of accidents increased slightly in 1966. Industrial leaders blamed production expansion. Caprolactam production and methanol production, they reasoned, were still so new that workers had not yet learned to do their jobs safely. This must have been especially true in the caprolactam shop where, in 966, two workers died on the job. The typical injured worker may have been new to certain duties, but she or he was probably not new to the enterprise. The profile of the most oft-injured worker at the combine was a fitter (*slesar'*) with more than five years' worth of experience at the combine who suffered a mechanical injury due to a violation of safety regulations.[45]

It is perhaps no surprise that, amid the changes, the relationship between

[44] GATO f. R – 3469, op. 3, d. 7, ll. 37-40 "Minutes of Meetings of the Factory Committee of the Shchekino Chemical Combine" (26 March 1965).
[45] GATO f. R – 3469, op. 2, d. 397, ll. 268-269; GATO f. R – 3469, op. 3, d. 7, ll. 411-412 "Minutes of the Meeting of the Factory Committee of the Shchekino Chemical Combine" (26 September 1966).

production, wages, and labor time remained out of whack. In 1966, the Shchekino Chemical Combine failed to meet its target indicator for productivity per worker (91.9

Table 4.2
On the Job Injuries at the Shchekino Chemical Combine, 1964-1965

	1965	**1966**
Avg. Number of Employees	7015	7820
Number of Accidents	42	58
Deaths	2	4

GATO f. R – 3469, op. 2, d. 397, l. 268

percent). Meanwhile, the plan for growth of average wages of production workers also went unfulfilled, but by a ratio of 98.8 percent; for nonproduction workers, the planned rate was actually exceeded (101 percent). In other words, wages were once again growing more rapidly than production. The combine's yearly report blamed this upside-down ratio – one that, by this point, was no stranger to the enterprise's administrators – on two factors: failure to meet the planned target for gross production (ninety-three percent) and the raw number of student-workers – fifty-five against a plan of zero – unexpectedly put on the combine's payroll by the party city committee. At the same time, the average worker spent more days away from work than ever. If, in 1965, workers typically labored just over 264 days per year, then, in the following year, the number had fallen to 256. This was not necessarily a positive sign. For one thing, workers were working longer hours. Between 1965 and 1966 the duration of shifts increased from an average of 6.8 to 7.28 hours. And while workers took more vacation days – 21.8 per year over a planned 20.2 for a fulfillment rate of 108 percent – than in 1965 (19.3), other figures suggest that this was a result of disease rather than leisure opportunities. At 7.8, the number of days lost per year per worker to illness remained consistent – it was 7.7 in 1965 – while

eclipsing the planned number of 6.1 by a ratio of 127.9 percent.[46]

Hazardous conditions and the balance between production and wages might have been within the control of enterprise management. But some factors that hindered progress certainly were not. The growing number of damaged parts that inevitably followed from increased production combined with delays in construction caused serious problems for repair and installation workers. Equipment that required additional protection to ensure durability was left neglected for months because the workshop for anticorrosive coatings had not been completed. Some resorted to using simple paint to try to cover up rust on pipes.[47] Without suitable warehouses, state of the art machinery was sometimes simply left outside to deteriorate. Occasionally the elements damaged unused machinery to such a degree that it had to be restored before installation.[48] Desperate administrators sometimes sent machinery to other enterprises for repair, a move that left the combine on the hook for unplanned transportation costs.[49] Moreover, the methodological instructions developed by MVK were insufficient. O. A. Chukanov, the second secretary of the Tula regional committee of the Communist Party, remarked that the regional committee had to request the ministries more thoroughly specify the conditions of the transfer. This appears to have worked only sometimes, as in the case of a local motor depot.[50] The Ministry of the Chemical Industry, on the other hand, complained that the plan for the nineteen chemical enterprises scheduled to transfer to the

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[46] GATO f. R – 3469, op. 2, d. 397, ll. 258-261.
[47] P. Semenov, "Pora, davno pora," *Znamia kommunizma* 29 April 1966, 2.
[48] P. Bakulin, "Otstavshii tyl," *Znamia kommunizma* 6 August 1966, 2.
[49] P. Bakulin, "Slaboe zveno," *Znamia kommunizma* 18 October 1966, 2.
[50] GATO f. P – 177 (Collection of the Communist Party of the Tula Region), op. 39, d. 41, *korobka* (k.) 664, l. 29 "Transcript of the Meeting of the Tula Regional Party and Economic Activists" (7 February 1967).

new conditions from 1 January 1967 was not completed until December 1966. As a result, the ministry was unable to supervise or aid in the transition at the Shchekino Chemical Combine.[51] Chemical factories, in other words, were on their own. Work in the methane conversion shop was delayed because operators were unable to convert gas into methanol; Soiuzprommontazh – a national trust for construction and installation work – had simply failed to order equipment capable of heating the converter to the necessary levels.[52]

Analyses of the implementation of the new conditions of planning and economic incentives began to appear in early 1967. Put together by the laboratory of economic incentives under the department of economics of the Academy of Sciences, the first considered the initial nine months of reform across all of industry. Sent to Bachurin on 21 January, its signatories included the famous mathematician and director of the central economic and mathematics institute N. P. Fedorenko as well as the respected social scientist Alexei Rumiantsev. This was the best the Soviet system had to offer. Still, the memorandum was not perfect. The statistics complied about reformed enterprises were meaningless without a basis for comparison, which was non-existent because TsSU had failed to collect similar data on industry for previous years. Rigorous interpretation was also lacking. For example, factory economists did not include explanations of the source of profit – better use of fixed assets, improved labor organization, or something else – in their statements. This made it difficult to ascertain what, if anything, was actually working.

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[51] RGAE f. 459, op. 1, d. 1937, ll. 8-9.
[52] A. Lapshev, "Montazhniki ne toriatsia," *Kommunar* 3 February 1966, 1.

But there was enough for Fedorenko, Rumiantsev, and their team to draw some general conclusions. For one thing, they recognized that enterprises faced many challenges in transitioning to the new system of planning and economic incentives. Most other factories continued to function according to pre-reform standards. This meant that the enterprises operating according to the new system were regularly dealing with institutions that did not share financial priorities or a similar sense of urgency. Moreover, according to the report, the transfer "always" entailed selling off surplus fixed assets. This was a complicated task. As it turned out, buyers did not clamor to purchase machinery that was often worn down, outdated, or specific to a particular industry.

Apparently, labor was easier to consider. Out from under the thumb of central planners, factory leaders began deciding for themselves how many workers they needed. The interrelated strategy of applying NOT measures and improving labor processes to streamline the size of the workforce was commonly utilized. But so was releasing (*vysvobodit'*) workers. The laboratory of economic incentives' report was not clear about the number of workers the reformed enterprises released. But it did note that at some factories – such as the Kosinskaia knitting factory and the Kalibr plant, a manufacturer of measuring instruments – the workforce had begun to decline after years of growth. The released workers were not left to fend for themselves. Some received new jobs in different shops within the same enterprise. Others went to work at new factories, most of which had not implemented the new system and thus had no reason to oppose bringing in additional labor. The portion of the wage fund that would have otherwise been used to pay released workers stayed with the original enterprise and was distributed among those who remained. In this way, workers benefited from more efficient use of human labor.

But for structural barriers, the laboratory of economic incentives' memorandum hypothesized, releasing workers would have been much more common. The funds for material incentives and social and cultural events and housing construction were tied to the level of profitability, which itself was calculated according to metrics including the wage fund. And the latter, of course, was pinned to the size of the workforce at an enterprise. Thus, any decrease in the number of workers could set off a chain reaction that would diminish, or even eliminate, the incentive funds. To protect potential bonuses, enterprises understandably fought to maintain the size of their wage fund. But this led to what the report called the "preservation of an excessive number of workers" at factories. In the middle of a reform designed to rationalize production this was unacceptable. "As the reform progresses," it concluded, "the release of labor will take on serious proportions if it is not constrained by administrative methods." To prevent "administrative methods" from interfering with what was understood to be a positive development, the laboratory suggested taking steps such as sending released workers to labor in public services and reducing the workday for women, particularly those who were raising children.[53]

A similar memorandum produced by the Ministry of the Chemical Industry and completed in March 1967 examined the first group of chemical enterprises to adopt the reform. The ministry found that numerous enterprises had difficulty with the new

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[53] RGAE f. 4372, op. 66, d. 1477, ll. 142-146, 151-155 "The First Results of the Economic Reform in the Industry of the USSR and Some Problems of Further Enhancing its Reality" (21 January 1967).

On Rumiantsev's career see N. V. Romanovskii, "Pervyi direktor–Akademik A. M. Rumiantsev," *Sotsiologicheskie issledovaniia* 6 (June 2008): 22–27. On Fedorenko see V. S. Balakin, "Iz sotsial'noi istorii sovetskoi nauki: Akademiki V. S. Nemchinov i N. P. Fedorenko zashchishchaiut ekonomiko-matematicheskie metody optimal'nogo planirovaniia (1960-e – seredina 1970-kh gg.)," *Vestnik Perm'skogo universiteta* 43, 4 (2018): 88-97.

economic calculations. Cadres needed more economic training, it determined, if the reform was to succeed. The situation was so dire that some even speculated that the ministry would need to create an ad hoc administrative body to oversee chemical enterprises' transition. "While the transfer of a small number of individual enterprises managed to do without such an apparatus," the report read, "it is not possible to carry out a massive transfer of all enterprises in the existing organizational conditions." If these findings were an indication of the level of economic knowledge among the chemical industry's workers, then clearly Vera Slepykh had been right to focus so much time training the managers and workers at the Shchekino Chemical Combine.

The Ministry of the Chemical Industry did manage to compile some figures. One major question, of course, was how much profit was finding its way into workers' pockets. The research team began by separating the nineteen chemical factories into three groups according to percentage of profits – eighty-five, seventy-five, or below sixty-five – deducted into the material incentives and social and cultural and housing construction funds. This division was less than scientific; the entire process was so new that, according to the report, no "unified and justified principle of grouping enterprises for calculating standards" existed. Then, it measured the distribution of these funds as a percentage of the wage fund at each enterprise. For the material incentives fund, the ratio was as low as nine and as high as 14.9 percent; for the social and cultural and housing construction fund the range was between three and six percent. Crucially, the imbalance between the growth of labor productivity and the growth of wages seemed to finally be corrected. During early 1967, the former grew by ten percent while the latter increased by just over six percent in the factories that first administered the reform.

The Shchekino Chemical Combine landed roughly in the middle of both metrics: its material incentives fund was around twelve percent the size of its wage fund; for the social and cultural and housing construction fund, that number was 4.3. Including bonuses, in the first months of 1967 the average salary at the enterprise increased by 8.7 percent – against a planned 5.5 – over 1966. The plant earned 3.4 rubles for every ruble it spent on wages. In part this was because, by 1967, the combine's years-long struggle with modernizing production finally seemed to be paying off. According to the Ministry of the Chemical Industry, total sales at the combine grew by fifty-seven percent. Just over forty-four percent of this growth was due to new production capacities; the remaining thirteen percent was manufactured using equipment installed before 1966.[54]

A closer look at labor organization, however, reveals a more concerning situation at the combine. First, while production expansion had been successful, it also required a great deal of attention. According Mokin, experienced managers and leading workers – including the most important political cadres and the heads of some shops – were transferred to work in these new facilities.[55] Next, the combine tried, unsuccessfully, to hire some additional employees during the year.[56] Most likely, this labor was needed to work with new equipment – for urea, ammonia, methanol production – recently imported from the Netherlands and Italy. According to Dutch and Italian instructions, production and repair of this machinery should have required 278 workers; however, at the

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[54] RGAE f. 459, op. 1, d. 1937, ll. 9-10, 15, 22, 27-28, 38-40 "Report on the Topic: Transfer of the Chemical Industry Enterprises to the New System of Planning and Economic Incentives" (16 March 1967).
[55] GATO f. P – 65 (Collection of the Communist Party of the City of Shchekino), op. 8, d. 81, k. 147, ll. 9-10 "Minutes of the 15th Shchekino City Party Conference" (15 December 1967).
[56] Ia. Tolstikov, "Shchekinskii eksperiment: Glavnoe – proizvoditelnost' truda," *Sovetskaia Estoniia* 18 Sept. 1968, 2.

Shchekino Chemical Combine, where engineers had a difficult time establishing service norms for the unfamiliar machinery, 806 workers were needed to perform the same duties. This situation was not unique. As the minister of the chemical industry L. A. Kostandov and Goskomtrud chief A. P. Volkov frankly wrote, "[t]he same situation exists in other chemical plants purchased from abroad."[57] Actually, it was worse. Aggregate staff in the six chemical factories, including the Shchekino Chemical Combine, whose production processes were centered on technology imported from the West grew by more than six times.[58] Finally, equipment violations were endemic. *Khimik*'s attribution of this development to careless work was almost certainly an inaccurate, or at least incomplete, appraisal.[59] According to Mokin, workers persistently expressed frustration with undependable and inefficient transportation to the plant; performance, he reasonably deduced, suffered as a consequence.[60]

In March 1967, Vera Slepykh offered her perceptive on the progress at the Shchekino Chemical Combine. "The economic reform," she wrote, "is entering the life of the enterprise deeper and deeper, setting new tasks." To continue its mission of rationalization, Slepykh continued, management ought to pursue better accounting methods at both the enterprise- and brigade-level. Others had their own ideas. During a party meeting on economic problems held at the combine in 1965, she recalled, managers and workers discussed ways to increase labor productivity. While analyzing photographs

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[57] GATO f. R – 3469, op. 2, d. 523a, l. 61 "From L. A. Kostandov and A. Volkov to the Council of Ministers" (14 February 1968); GATO f. R – 3469, op. 2, d. 883, l. 200 "Annual Report of the Company on its Main Activities and Explanatory Notes for 1971" (no date provided)."
[58] Efim Manevich, "Problemy vosproizvodstva rabochei sily i puti uluchsheniia ispol'zovaniia trudovykh resursov v SSSR," *Voprosy ekonomiki* 10 (1969): 26-40. Here, 33-34.
[59] "Tri mesiatsa raboty po – novomu," *Khimik* 22 April 1967, 1.
[60] GATO f. P – 65, op. 8, d. 81, k. 147, l. 12.

and the total number of workers at the combine, some in attendance began discussing the possibility of "cut[ting] back" on the number of workers in some shops. After some hesitation, others agreed. Together, they proposed to release forty-two workers from the mineral fertilizer shop.[61] It was a harbinger of things to come.

[61] "Za vysokuiu rentabel'nost' (o perekhode Shchekinskogo khimkombinata na rabotu po-novomu rasskazyvaet glavnyi economist predpriiatiia V. I. Slepykh)," *Znamia kommunizma* 3 March 1967, 2.

5: Flexible Production with Socialist Characteristics

The Kosygin Reform did not put an end to industrial leaders' habit of conducting economic experiments at select factories. In the spring of 1967, the Shchekino Chemical Combine became the site of one such event, the aptly named "Shchekino Experiment," which gave enterprise managers the power to reorganize the shop floor as they saw fit. Over the course of the experiment, workers were shuffled around, retrained, asked to work multiple jobs, or dismissed in the name of enterprise profitability. Management did not act alone; key institutional and intellectual leaders also played an important role in administering the Shchekino Experiment. In the Soviet Union, this arrangement was treated as a significant innovation in economic management.[1] But as we have already seen, the constituent elements of the Shchekino Experiment – the stabilization of the

[1] As one economist wrote in the early 1970s, "The Shchekino Method has received such great recognition and support that it would be hard to name another economic experiment…that has become so widely known." See A. Bodyrev, "Prodolzhenie eksperimenta," *Pravda* 26 May 1972, 2. Also see similar comments from Nikolai Baibakov in N. Baibakov, "Plan i proizvodstvo v novykh usloviiakh," *Pravda* 1 October 1968, 2-3. Here, 3; *Kommunist*, the party's theoretical journal, in "Rezervy narodnogo khoziaistva – v deistvie," *Kommunist* 2 (Jan. 1969): 49-56; and K. Novikov, the chairman of the State Committee for the Utilization of Labor Resources of the Russian Republic, in K. Novikov, "Problemy effektivnogo ispol'zovaniia trudovykh resursov," *Kommunist* 13 (Sept. 1969): 99-108.

The Shchekino Experiment was treated similarly in the international press. Eager to exploit any apparent abandonment of socialist policies as evidence that such a system was unsustainable, (US) American observers celebrated it as an acceptance of capitalist production methods. See "Russia Wields a Capitalist Tool: The Layoff," *Business Week* (2109) 31 January 1970: 108-110. Deep in the throes of the Sino-Soviet split, the Chinese Communist Party reacted similarly and cited the Shchekino Experiment as evidence that the Communist Party of the Soviet Union had "revised" Marxism-Leninism. See Yu Hsin, "Soviet Union's "Shchekino System" and United States' "Taylor System,"" *Peking Review* 18, 23 (June 1975): 21-22; "The "Shchekino System" Fizzles Out," *Peking Review* 20, 30 (July 1977): 27. On the Sino-Soviet split see Lorenz M. Luthi, *The Sino-Soviet Split: Cold War in the Communist World* (Princeton: Princeton University Press, 2008). While approaching the topic from a less polemical perspective, Western scholars have tended to reproduce the vision that the Shchekino Experiment, or the Shchekino Chemical Combine itself, was in some way exceptional. See Jeanne Delamotte, *Shchekino, entreprise soviétique pilote* (Paris: Éditions ouvrières, 1973), 114-115; Sergei S. Kasakow, "The Nature, Industrial Experience, and Economic Results of Shchekino's Incentive Scheme in Soviet Industry," *Southern Economic Journal* 41, 1 (July 1974): 134-140; Darrell Lee Slider, "Social Experiments and Soviet Policy-Making" (PhD Dissertation: Yale University, 1981), 25-26; Bob Arnot, *Controlling Soviet Labour: Experimental Change from Brezhnev to Gorbachev* (London: Macmillan, 1988).

wage fund, the release of personnel, the combination of job duties, and complicated means of distributing bonus payments – were not especially novel. As previous chapters have shown, by the late 1960s, these methods were already established managerial strategies in the Soviet Union. What made the Shchekino Experiment unique was that it united these previously disparate elements into one cohesive system designed to rationalize production over a predetermined period of years.

This is not to downplay the importance of the Shchekino Experiment. Rather, it is to suggest that the experiment's significance is most apparent when considered in global, rather than domestic, context. As this chapter demonstratees, the Shchekino Experiment represents the origins of an industrial system that bore a close resemblance to what is known in the capitalist world – but especially the United States and Japan – as "flexible production." David Harvey, one of the major theorists of the concept, has identified the primary features – multi-task labor, detailed bonus systems, the elimination of clear job demarcations, extensive on-the-job training, increased worker responsibility, and the division of the workforce into groups of high and low job security – that distinguished flexible production from its Fordist predecessor.[2] "Flexible production with socialist characteristics," as it will be called in this chapter, was defined by variations of each of these phenomena. But the Shchekino Experiment was no mere replication of capitalist managerial practices. First, even in the context of economic experimentation, dismissed workers in the Soviet Union were guaranteed work. Together with the factory trade union committee, enterprise management was responsible for finding new positions for those

[2] David Harvey, *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change* (Cambridge: Blackwell, 1999 [1990]), 177-178.

who had lost their job. Second, flexible production with socialist characteristics differed in the way that it distributed profits. In the Soviet Union, the chapter argues, real, even if imperfect, efforts were made to use profit to invest in the public good. Third, unlike in the liberal world, the Soviet Union did not attempt to construct economies of scope – economies that sought to lower production cost by expanding their scope of production – to supplant economies of scale.[3] Mass production remained very much the norm. In and of themselves, however, these differences are rather unremarkable. As the chapter points out, flexible production, much like Fordism, was not an undifferentiated structure. To maximize its efficacy within particular national, social, and cultural traditions, industries and firms implemented flexible production strategies selectively more often than they simply mimicked (US) American or Japanese innovations.

On 24 March 1967, just three months after the Shchekino Chemical Combine's formal adoption of the Kosygin Reform – or the "new system of planning and economic incentives," as it was called on the factory level – Prime Minister Alexei Kosygin charged the Ministry of the Chemical Industry and the State Committee on Labor and Wages (Goskomtrud) with developing and implementing an economic experiment at a nitrogen fertilizer plant. The institutions had a clear mission: "to improve production and lower the total number of employed personnel."[4] In April, an unspecified group of administrators from Moscow inquired about the possibility of conducting an experiment

[3] On economies of scope see John C. Panzar and Robert D. Willig, "Economies of Scope," *The American Economic Review* 71, 2 (May 1981): 268-272.
[4] *Gosudarstvennyi arkhiv Rossiisskoi Federatsii* (GARF) *fond* (f.) 5446 (Collection of the Council of Ministers), *opis'* (op.) 102, *delo* (d.) 195), *listy* (ll.) 87 "Minutes of the Meeting with the Chairman of the Council of Ministers of the USSR, A. N. Kosygin" (24 March 1967).

at the Shchekino Chemical Combine. Petr Sharov, the enterprise director, agreed.[5]

The Shchekino Chemical Combine was a reasonable, if not ideal, choice for such an economic experiment. By 1965 it was the sixth-largest producer – out of eighteen factories – of ammonia fertilizer in the Soviet Union. At 112.6 percent, its rate of growth of labor productivity was good for fourth among the same group.[6] It had also been the beneficiary of the state's commitment to chemical production. As chapter four demonstrated, the Shchekino Chemical Combine had recently installed up to date production technologies throughout the enterprise. What is more, demographic trends in the Tula region left factory administration with little choice but to try to produce more with fewer employees. As table 5.1 shows, the population in the area had grown only

Table 5.1
Population Change in the Tula Region, 1959-1968

Year	Population	In Percentage of Previous Year
1959	1,920,300	-
1960	1,929,300	100.5
1961	1,926,500	99.9
1962	1,919,900	99.6
1963	1,925,600	100.3
1964	1,943,600	100.9
1965	1,952,500	100.5
1966	1,961,000	100.4
1967	1,964,500	100.2
1968	1,957,700	99.7

Source: *Narodnoe khoziaistvo Tul'skoi oblasti: Statisticheskii sbornik* (Tula: Priokskoe knizhnoe izdatel'stvo, 1973), 6-7.

marginally between 1959 and the start of the Kosygin Reform. To further complicate

[5] P. M. Sharov, *Poisk chetyrekh let: Rasskaz o shchekinskom pochine* (Tula: Priokskoe knizhnoe izdatel'stvo, 1973), 10-11.
[6] *Rossiisskii gosudarstvennyi arkhiv ekonomiki* (RGAE) *fond* (f.) 459 "Collection of the Ministry of the Chemical Industry," *opis'* (op.) 1, *delo* (d.) 49, *listy* (ll.) 160-161 "Review of "The Nitrogen Industry of the USSR in 1965" (GIAP)" (January 1966).

matters, the Tula region was already highly urbanized. Whereas fifty-four percent of the Soviet population lived in cities in 1967, in the Tula region that number was closer to sixty-six percent.[7] In short, there simply were not many peasants left to turn into workers. This was not a secret. In fact, Soviet journalists openly cited demographic issues as reason enough to pursue efforts to minimize the use of human labor. As one wrote:

> [c]alculations by specialists show that the planned rates of development of the national economy will in time require more manpower than the increase in the adult population will be able to provide to the country. Even now some areas are in need of workers. This shortage of cadres can be made up by a significant increase in labor productivity; therefore, it is necessary to increase production without simultaneously increasing the number of workers.[8]

Finally, as Sharov explained, the Shchekino Chemical Combine's proximity to *Iasnaia Poliana*, Lev Tolstoy's estate and the site of an important museum dedicated to his memory, limited the possibility for expansion.[9] Pollution from the enterprise had already degraded the natural beauty of the manor, in particular its majestic conifers, and the Ministry of Culture of the Russian Republic was intent on protecting what had survived.[10]

On 8 April 1967, two weeks after Kosygin's memo was delivered, Sharov sanctioned the creation of twelve commissions and charged them with "studying, developing, and introducing" different aspects of a "rational" system of labor and

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[7] *Narodnoe khoziaistvo Tul'skoi oblasti: Statisticheskii sbornik* (Tula: Priokskoe knizhnoe izdatel'stvo, 1973), 6; *Narodnoe khoziaistvo SSSR v 1973: Statisticheskii ezhegodnik* (Moscow: Statistika, 1974), 7.
[8] "Ne chislom, a umeniem," *Izvestiia* 12 October 1969, 5. Soviet journalists wrote frequently about the connection between demographic and socioeconomic problems. For example, see V. Perevedentsev, "O probleme rozhdaemosti i demograficheskom nevedenii," *Literaturnaia gazeta* 13 August 1966, 2.
[9] P. Sharov, "Na puti ko vtoromu etapu," *Kommunar* 22 January 1970, 2.
[10] See *Rossiiskii gosudarstvennyi arkhiv sotsial'no-politicheskoi istorii* (RGASPI) *fond* (f.) 556, *opis'* (op.) 24, *delo* (d.) 50, *listy* (ll.) 101-102 "From O. Chukanov to TsK KPSS" (2 November 1964); ll. 103-106 "From the Director of the *Iasnaia Poliana* Museum to the Presidium of the TsK KPSS" (28 September 1964); ll. 107-108 "From Deputy Head of the Department of the Chemical Industry of the TsK KPSS of the Russian Republic to TsK KPSS" (21 December 1964).

managerial organization to grow the rate of labor productivity at the combine. That same month, specialists from the Ministry of the Chemical Industry and Goskomtrud developed a plan aimed at merging related shops, centralizing repair and auxiliary services, mechanizing production, combining job duties, extending workspace, and leaving unchanged – that is, left at the level established for 1967 – the wage fund afforded to the factory by state planners for a period of three years (1968-1970). The specialists expected that this would enable the factory to release (*vysvobodit'*) more than 800 workers, 230 engineering-technical workers (ITR), and white-collar workers from employment. This was a noteworthy proposal. As I. Minin, the chairman of the combine's trade union committee, explained, in a typical Soviet factory the size of the workforce was linked to the wage fund so that any change in the former resulted in a commensurate change in the latter.[11] By decoupling these two variables, Goskomtrud allowed the enterprise to accrue a wage fund surplus thereby incentivizing – at least potentially – enterprise leadership to shed redundant labor. Released workers would not be left to fend for themselves; the enterprise was obliged to find jobs for those who had been dismissed. On 3 May 1967, Sharov wrote a memorandum to Leonid Kostandov, the minister of the chemical industry, which essentially supported these plans. Sharov suggested that sixty percent of the funds economized by releasing personnel between 1967 and 1970 should be used to supplement the wages of those who took on additional responsibilities with the remainder going toward improving the pay of repair workers and providing bonuses for increased output and labor productivity.[12]

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[11] I. Minin, *Effektivnost' Shchekinskogo eksperimenta* (Moscow: Profizdat, 1970), 4.
[12] V. Ovchinnikov, "Shchekinskii eksperiment," *Kommunar* 20 March 1968, 2; Minin, *Effektivnost' Shchekinskogo eksperimenta*, 4; *Gosudarstvennyi arkhiv Tul'skoi oblasti* (GATO) *fond* (f.) R – 3469, *opis'*

This plan was not developed without consulting the workforce. In the late-1960s, Soviet sociology was experiencing a renaissance. Soviet social scientists – mostly party members trained in philosophy or economics – were not impartial observers; to help inform policy decisions, they produced countless studies of Soviet society and of life and labor in the enterprise.[13] At the Shchekino Chemical Combine, sociologists conducted interviews with workers to ascertain the possibilities for, and limits of, reform. In June 1967 *Khimik*, the organ of the party committee of the Shchekino Chemical Combine, announced that the section of concrete-sociological research of the Tula regional council of the Communist Party would conduct research at the enterprise. Its goal was to assess the "development of labor productivity, the improvement of the situation of workers in production, and the growth of their interest in the effectiveness of work" with up to ten percent of the workers in the combine.[14] Published in July 1968, a partial summary of the results of the research revealed that less than ten percent of the 714 workers interviewed were dissatisfied with their position while 276 were actively improving their skill level to qualify for a better one. The article noted that workers were open to receiving various forms of additional compensation for their labor: the most popular proposal was for bonuses, but others also suggested vacation vouchers or additional paid leave. This

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(op.) 2, *delo* (d.) 523a, *listy* (ll.) 45 "On the Issue of Introducing a Wage System and Organizing Production that will Ensure a Great Interest in Increasing Labor Productivity and Reducing the Number of Industrial Personnel" (3 May 1967).

[13] Elizabeth A. Weinberg, *Sociology in the Soviet Union and Beyond: Social Enquiry and Social Change* (Burlington: Ashgate, 2004 [1974]); Ellen Mickiewicz "Policy Applications of Public Opinion Research in the Soviet Union," *The Public Opinion Quarterly* 36, 4 (Winter 1972-1973): 566-578. Here, 577-578; Jeffrey W. Hahn, "The Role of Soviet Sociologists in the Making of Social Policy," in *Social Scientists and Policy Making in the USSR*, ed. Richard B. Remnek (New York: Praeger, 1977): 34-58. Here, 52-53.

The most important of these studies was published the same year that the Shchekino Experiment began. See A. G. Zdravomyslov, V. P. Rozhin, and V. A. Iadov, *Chelovek i ego rabota* (Moscow: Mysl', 1967).

[14] A. Filippov, "Vazhnaia rabota," *Khimik* 3 June 1967, 1.

information was subsequently used to advise the party committee and social organizations on political attitudes and work conditions in the combine.[15] According to Minin, the sociologists' work provided crucial "confidence" that the combine was indeed up to the task of following through with an economic experiment.[16]

A Goskomtrud decree from 17 July 1967 sketched the guidelines for what came to be known as the "Shchekino Experiment." The order affirmed management's power to pay workers bonus wages by stabilizing the wage fund. These contingent payments were linked to labor organization. The terms established by Goskomtrud declared that any wage fund surplus that resulted from employee dismissals – voluntary or otherwise – at the Shchekino Chemical Combine would be divided among remaining workers: eighty-five percent of these prospective funds would finance supplemental wages and bonuses for workers and the remainder was to be used to provide the same for ITR and white-collar employees. For combining professions or work that led to an increase in productivity while simultaneously decreasing the size of the personnel at the plant, workers, ITR, and white-collar employees could receive bonus payments equivalent to up to thirty percent of their base wage. Workers in the process of learning new skills or participating in the introduction of new production norms (quotas) could receive between three- and six-months' worth of additional wages. Repair workers, for their part, were eligible for supplemental wages totaling ten percent of their base wage.[17] In preparation

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[15] "Anketa rasskazyvaet (o rezul'tatakh konkretno-sotsiologicheskogo issledovaniia, provodimogo na kombinate)," *Khimik* 11 July 1968, 2.
[16] Minin, *Effektivnost' Shchekinskogo eksperimenta*, 7-8.
[17] GARF f. R – 9553 (Collection of the State Committee of the Council of Ministers of the USSR on Questions of Labor and Wages), op. 1a, d. 115, ll. 179-180 "On the Experience of Carrying Out the Shchekino Chemical Combine Measurements on the Broadening of the Interest of Workers and Employees in Increasing Production and Reducing the Number of Personnel" (17 July 1967); Minin, *Effektivnost' Shchekinskogo eksperimenta*, 4.

Table 5.2
Plan of Measures Aimed at Releasing Employees and Increasing Labor Productivityat the Shchekino Chemical Combine, 1967-1970

Measure	Number Released	Release Schedule by Year			
		1967	1968	1969	1970
Combining Ammonia #1 and Methanol Production Shops	202	202	-	-	-
Centralization of Repair Services	-	-	-	-	-
Ammonia	180	-	100	60	20
Caprolactam	123	123	-	-	-
Reduction of Control Charts	42	17	25	-	-
Consolidation of Workday or Professions, Increasing Work Areas	410	211	80	39	80
Improving Technology	43	43	-	-	-
Total	**1,000**	**596**	**205**	**99**	**100**

Source: GATO f. R – 3469, op. 2, d. 523a, l. 49

Table 5.3
Plan for Release of Personnel by Category of Workers and Professions at the Shchekino Chemical Combine, 1967-1970

Category and Profession	Total Released	By Year			
		1967	1968	1969	1970
ITR	217	100	67	25	25
White-Collar Workers	17	10	7	-	-
Technicians	67	17	25	15	10
Technological Workers	146	102	30	-	14
Maintenance Personnel	349	163	76	60	50
Duty (*dezhurnyi*) Personnel[18]	161	161	-	-	-
Loaders	43	43	-	-	-
Total	**1,000**	**596**	**205**	**100**	**99**

Source: GATO f. R – 3469, op. 2, d. 523a, l. 50.

[18] Duty (*dezhurnyi*) personnel were typically responsible for tasks such as switching out technical equipment or, for example, managing energy supply, and monitoring heat and condensation points.

Sharov, along with his assistant director V. I. Polikarpov, developed a three-year plan, represented in figures 5.2 and 5.3, for dismissals by measure and profession. As these tables show, management's goal was to release at least 1,000 workers before the end of 1970. Of these, 596 would be dismissed before the end of 1967.

On 1 August 1967 K. Cherednichenko, then the deputy minister of the Ministry of the Chemical Industry, further clarified the specifics of the experiment. In declaring that only half of the funds accumulated through the release of personnel, the combination of professions, or the increase of productivity, could be awarded to workers in the form of supplementary wages, the Ministry of the Chemical Industry actually depressed their potential earnings. Cherednichenko simultaneously granted more power to enterprise managers and shop leaders by allowing them to select recipients and the size of bonuses in accordance with the standards determined by Goskomtrud on 17 July. What remained of the initial surplus was to be transferred to the material incentives fund at year's end. Two weeks later, on 16 August 1967, Sharov ordered factory administration to begin the experiment.[19]

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[19] GATO f. R – 3469, op. 2, d. 523a, ll. 39-42 "Directive No. 453/D" (1 August 1967); ll. 20-35 "Planned Improvements to the Organization of Labor, Production, and Management for 1967" (16 August 1967); ll. 18-19 "Order No. 399/P" (16 August 1967).

Another minor adjustment was made in May 1968. Writing in *Planned Economy*, the monthly journal of Gosplan, the combine's chief economist, Vera Slepykh, described the addendums. Under these terms, an additional fund was established for new production facilities. In reality, this was simply the fulfillment of the reform Kosygin explicated back in 1965. Slepykh's article clarified how the production fund would work in the context of the experiment. The size of this supplementary fund would initially be based on estimations developed through the study of similar combines. Any part of the fund economized as a consequence of staff reduction, she explained, was designated to be added to the earnings of those workers who learned new professions, took on new jobs, or expanded their zones of service. Any sum remaining at the end of the year was to be transferred to the enterprise's material incentives fund. See V. Slepykh, "Shchekinskii experiment," *Planovoe khoziaistvo* 8 (Aug. 1969): 35-44. Here, 36; P. M. Sharov, *Shchekinskii fenomen: Zapiski direktora Shchekinskogo khimkombinata o iudiakh, vremeni, o sebe* (Tula: Peresvet, 1999), 151.

Fulfilling Kosygin's charge to improve production and decrease the number of workers required reexamining labor organization. This task fell to the scientific organization of labor (NOT). From its rebirth in the late-1950s, NOT was an important part of the party's efforts to locate "hidden reserves" to grow production. Its role became particularly critical when, on 15 March 1967, the Central Committee of the Communist Party announced a nationwide transition to a five-day workweek.[20] Chapters two and three discussed the degree to which the NOT of 1960s differed from its interwar predecessor. NOT's transformation became even more apparent at the All-Union Meeting on the Organization of Labor held in Moscow in July 1967. There, Goskomtrud leader A. P. Volkov made it clear that the Taylorist model of labor organization – with its focus on repetition of single tasks – had run its course.

> In the modern period, technology is increasingly developing in the direction of connecting different types of equipment in single technological complexes, in automatic and production lines, which creates a fundamental change in the division of labor. These conditions require people who can perform several specializations. That is why in a number of sectors of the national economy, the process of combining professions, expanding service areas, and therefore the sphere of human labor activity, training workers of a wide production and technical outlook is increasingly developing.

Volkov stressed that NOT would have wide-ranging effects on every level of enterprise personnel. Accusing it of expanding for no purpose other than "the desire to have more bosses," Volkov suggested reducing the ranks of enterprise administration and ITR in an effort to locate what he assumed were "huge additional [production] reserves." Volkov

[20] "O perevode rabochikh i sluzhashchikh predpriiatii, uchrezhdenii i organizatsii na piatidnevnuiu rabochuiu nedeliu s dvumia vykhodnymi dniami," *Pravda* 15 March 1967, 1; "Ukaz prezidiuma Verkhovnogo SSSR: O perevode rabochikh i sluzhashchikh predpriiatiia uchrezhdenii i organizatsii na piatidnnevnuiu rabochuiu nedeliu s dvumia vykhodnym dniami," *Pravda* 15 March 1967, 1.

was candid in his remarks on these issues. "One of the most important tasks of the scientific organization of labor," he argued, "is applying norms to engineering and managerial labor." But NOT specialists could not accomplish this task alone; Volkov called on sociologists to contribute by focusing their analyses on labor organization and working conditions in the enterprise. Their task was a matter of global significance. "The wide and comprehensive introduction of the scientific organization of labor on the basis of new technology," he argued, "will allow us in the shortest possible time to achieve a significant superiority in productivity over the most developed capitalist countries."[21]

In light of the meeting, Goskomtrud and the All-Union Central Council of Trade Unions (VTsSPS) formally issued recommendations to industrial branches. The suggestions these institutions delivered to chemical producers are indicative of the production process in that industry. Chemical production is typically continuous, or flow, production, meaning that manufactured materials remain in a state of constant motion throughout the production process. A capital-intensive industry, chemical production entails thousands of pieces of intricate equipment made of hundreds of thousands of parts operating continuously in a high-temperature, high-pressure environment. These conditions test the durability of even the most advanced machinery. A substantial staff of auxiliary (*vspomogatel'nyi*) workers – responsible for unskilled or low-skilled manual duties such as minor equipment repair, the manufacture of spare parts, loading and unloading rail cars, and some transportation – and repair workers are therefore requisite in any chemical enterprise. Though the Communist Party officially preferred piece rates,

[21] GARF f. 9553, op. 1, d. 2019, ll. 19, 36, 38, 41, 28, 51-52 "Transcript of the All-Union Meeting on Labor Organization" (26 June 1967).

both auxiliary and maintenance workers were commonly paid hourly wages owing to the challenges inherent in developing meaningful production norms for workers whose output is not easily quantifiable. Arguing that continuous production processes necessarily create conjoined workplaces, Goskomtrud and VTsSPS called on chemical enterprises to commit to the "development of combining professions and functions in all areas of the enterprise." To combat persistent problems with repair and maintenance workers, they recommended individual enterprises create centralized bodies to oversee these tasks.[22]

In fact, the implementation of NOT in the chemical industry was already well underway. In 1965 Semen Pogostin, an economist specializing in the study of the chemical industry, testified that the centralization of repair services allowed one synthetic rubber factory to decrease its number of repair and auxiliary personnel by over forty percent; another used the same method to increase its staff's productivity by thirty percent.[23] A January 1967 article in *Chemical Industry*, the monthly organ of the Ministry of the Chemical Industry, confirmed that eighty-three chemical enterprises had put NOT into practice.[24] In August, the center for the scientific organization of labor under the Ministry of the Chemical Industry was founded in Moscow.[25] NOT's role was understood

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[22] *Rekomendatsii vsesoiuznogo soveshchaniia po organizatsii truda (26 – 29 iiunia 1967 g.)* (Moscow: Goskomtrud / VTsSPS, 1967), 34-37. Donald Filtzer, for example, has associated auxiliary work with everything from intra-enterprise (shop to shop) transportation to cleaning and some minor repair work. See Donald Filtzer, *Soviet Workers and De-Stalinization: The Consolidation of the Modern System of Soviet Production Relations, 1953-1964* (New York: Cambridge University Press, 2002 [1992]), 23-24.
[23] S. Z. Pogostin, "Nekotorye voprosy nauchnoi organizatsii truda v khimicheskoi promyshlennosti," *Khimicheskaia promyshlennost'* 7 (July 1965): 50 (530) – 54 (534).
[24] B. V. Leitman, "Nauchnaia organizatsiia truda v khimicheskoi promyshlennosti," *Khimicheskaia promyshlennost'* 1 (Jan. 1967): 1 (1) – 5 (5).
[25] RGAE f. 459, op. 1, d. 3167, l. 13 "On the Center for the Scientific Organization of Labor under the Ministry of the Chemical Industry in 1968" (undated).

to be permanent. In a speech delivered on Chemist's Day in 1967, Kostandov stressed the significance of NOT to the present and future of Soviet industry. "NOT," he commented, "is not a temporary campaign, but a constant creative work on the part of brigades to improve their performance in every possible way."[26] That year, over 1,000 workers in more than 200 subunits implemented almost 12,000 NOT measures throughout the Soviet Union for a positive economic effect of over twenty million rubles.[27]

Table 5.4 shows that NOT measures played an important role in implementing the Shchekino Experiment.[28] Between 1967 and 1971, for example, combining jobs led to the dismissal of 433 workers. Most often, workers were asked to perform the duties of related professions. Much like in the United States, where "up-skilling" – the theory that technological advances and improved labor organization would lead to a more knowledgeable, essentially interchangeable workforce – failed to pan out, in the Soviet Union skill level had little to do with whether a worker took on additional responsibilities.[29] In the water supply shop, low-skilled electricians worked as drivers; in the transportation shop, drivers also served as unskilled loaders and freight workers; and

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[26] RGAE f. 459, op. 1, d. 1923, ll. 58-59 "Report "Jubilee of Soviet Chemists," Minister of the Chemical Industry of the USSR, L. A. Kostandov" (27 May 1967).
[27] RGAE f. 459, op. 1, d. 3385, l. 105 "Summary of the Implementation of the Recommendations of the All-Union Meeting on Labor Organization" (12 June 1969).
[28] This was not entirely new. From its creation in 1966, the department of NOT at the Shchekino Chemical Combine contributed to changes in labor organization. Senior economist A. Strigaleva wrote that by July of that year NOT measures had been implemented at 11 different shops – both carbamide shops, the electrical repair shop, the ammonia production shop, the sulfuric acid shop, the water supply shop, and four mechanical repair shops – within the factory. See N. Dobrutskii and G. Iakimenko, "Plany NOT – na rabochie mesta," *Khimik* 15 January 1966, 1-2; A. Strigaleva, "Nauchnaia organizatsiia truda – vazhneishaia zadacha," *Khimik* 9 July 1966, 1; "Za nauchnuiu organizatsiiu truda," *Znamia kommunizma* 17 August 1967, 1.
[29] Clark Kerr, John T. Dunlop, Fredrick Harbison, and Charles A. Myers, *Industrialism and Industrial Man* (Cambridge, MA: Harvard University Press, 1960). The classic criticism of the theory of "up-skilling" was provided by the labor activist and social scientist Harry Braverman. See Harry Braverman, *Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century* (New York: Monthly Review Press, 1998 [1974])

in ammonia production, gas producers performed the responsibilities of mechanics and operators (*apparatchik*). Altogether, 3,182 workers and 219 ITR at the Shchekino Chemical Combine received bonus pay for taking on additional duties or extending their zones of service – that is, accepting responsibility for operating at least one additional machine – by January 1969.[30] It was not uncommon for workers to learn even more than

Table 5.4
Method of Reduction of Industrial and Production Personnel During the First Stage of the Shchekino Experiment (August 1967-October 1971)

Method	Number
Combining Professions, Increasing Service Areas	433
Implementation of Labor Norms	240
Introduction of Automation / Mechanization of Manual Work	68
Reduction of Scientific Tests Performed	43
Consolidation of Workshops / Production Units	82
Centralization of Services within Production (laboratory control, instrumentation, etc.)	61
Centralization of Enterprise Instrumentation and Automation	60
Other Organizational Measures	52
TOTAL	**1,039**

Source: GATO f. R – 3469, op. 2, d. 777, l. 192 "Yearly Report of Enterprise p/ia V-8919 on Basic Activities in 1970" (undated).

two tasks. In 1969 S. P. Volikova, the secretary of the committee of the Komsomol of the Shchekino Chemical Combine, boasted that 917 of that organization's 1,318 members had "mastered" multiple related professions. Some had learned four or more.[31] Likewise N. P. Losev, a supervisor at the combine, reported that a "majority" of the workers at the factory knew two or three professions, and in some cases had mastered as many as six.[32]

[30] GATO f. R – 3469, op. 2, d. 666, l. 157 "Yearly Report of Enterprise p/ia V-8919 on Basic Activities in 1969."
[31] GATO f. P – 5427 (Collection of the Komsomol of the Industrial Association [ob"edinenie] "Azot" in the Shchekino Area [raion], Tula Region [oblast']), op. 1, d. 107, k. 4, ll. 35, 47 "Report on the Work of the Committee of the Komsomol from 31 October 1967 to 17 October 1969" (17 October 1969).
[32] GARF f. R – 5470 (Collection of the Central Committee of the Trade Union of the Workers of the Chemical and Petrochemical Industries), op. 29, d. 2522, ll. 48-50 "Transcript of the Regional Meeting of

Learning a new profession did not give workers permission to work at their own pace. As Volikova put it "the loss of working time now multiplies in accordance with the number of professions that everyone learns."[33]

Sharov argued that the Shchekino Experiment was unique in Soviet history because the push to combine job duties came from workers themselves.[34] There was at least some truth to this. Minin cites two examples of workers' contributions to labor intensification at the enterprise. In the hydrogenation department of the caprolactam shop, workers observed that the task of triple pump operators could be performed by hydrogenation operators and circulating compressor operators. After studying the work of triple pump operators, Minin attested that hydrogenation operators and circulating compressor operators developed a new division of labor; the former started, stopped, and regulated the pump's loads while the latter ensured its functional integrity. Four workers were released as a result, and the wages of the innovators increased. The chemical industry is distinctive in that the machines where most production processes occur – synthesis columns – are located adjacent to, rather than within, primary workshops. Workers typically monitor synthesis columns from control panels located inside workshops. When circumstances require, workers – often operators – must leave the workshop to conduct tests or simple repairs on the synthesis columns while others temporarily observe multiple control panels. In the methanol shop, workers deduced that the crew could be streamlined if everyone in the shop was taught to manage more than

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the Shock Workers of Communist Labor of the Enterprises of the Chemical, Petrochemical, and Gas Industries of the Tula Region in the city of Efremov" (25 April 1969).

[33] GATO f. P – 5427, op. 1, d. 107, k. 4, l. 36.

[34] P. M. Sharov, "Idet eksperiment: Ne chislom, a umen'shem," *Khimik* 5 December 1968, 1-2. Here, 2.

one control panel simultaneously, leaving others to work exclusively with the synthesis columns. To avoid de-skilling, workers alternated responsibilities. This maneuver alone allowed the enterprise to release eight workers; those who did not lose their jobs, meanwhile, received an additional thirty rubles.[35]

Alongside combining job duties, implementing norms represented the primary method used to release workers at the Shchekino Chemical Combine. Norms were a central element in improving labor discipline and organization; indeed, economists were fond of referring to norms as the "basis of NOT."[36] But as NOT had evolved so too had the process of norm-setting. By the late 1960s, norms took two forms. The first, "experimental-statistical" norms, used accounting data and assumptions about production conditions to estimate the amount of time required to complete the totality of a given task. The second, "technically substantiated" norms, entailed extensive analysis of the production process as well as the material conditions of work to identify opportunities for rationalizing production. To boost production, industrial leaders encouraged the replacement of the former with the latter.[37]

Putting norms into practice was especially urgent in the chemical industry. As Cherednichenko explained, chemical enterprises had been given the power to set remuneration standards for repair workers in main production shops. In many plants, but especially those that were – or were in the process of becoming – heavily automated, management moved aggressively away from piece rates; by 1968, just thirty-five percent

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[35] Minin, *Effektivnost' Shchekinskogo eksperimenta*, 10-14.
[36] A. P. Leoshkin, *Normirovanie truda na predpriiatiiakh khimicheskoi promyshlennosti* (Moscow: Khimiia, 1970), 21-25.
[37] "Metody normirovaniia," *Znamia kommunizma* 14 March 1968, 2.

of chemical workers were paid by the piece. By comparison, as of 1965, forty-two percent of Soviet industrial workers were paid time wages while 58 percent were paid piece rates. With such a low ratio of piece rates workers, few chemical enterprises designed norms of any sort.[38]

At the Shchekino Chemical Combine, the ratio of time- to piece-rates workers was particularly extreme. By 1968, 83.6 percent of the enterprise's workers were paid time rates, with the remainder paid by the piece.[39] Norms were an afterthought. Sharov wrote that when the experiment first began, only shift managers were obligated to fulfill technical standards of any kind. Engineers worked jobs that could have been given to workers with much less training. In other cases, workers were tasked with responsibilities far beyond their skill level. In 1966 around one quarter of the workers employed at the Shchekino Chemical Combine fulfilled jobs that should have been performed by engineers. Between twenty and twenty-five percent of all lost labor time in the combine was, according to Sharov, the result of repair workers "not doing their job" in large part due to poor labor organization. By contrast absenteeism – a chronic problem in Soviet industry in general – accounted for only one tenth of one percent of the same metric.[40] Even shop heads contributed to disorganization. As of March 1968, some administrators spent so much time overseeing minor work and attending meetings that they had virtually

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[38] K. K. Cherednichenko, "Trudu khimikov – nauchnuiu organizatsiiu," *Khimicheskaia promyshlennost'* 1 (Jan. 1968): 1(1)-5(5). Here, 3(3)-4(4); *Trud v SSSR: Statisticheskii sbornik* (Moscow: TsSU, 1968), 147.
[39] GATO f. R – 3469, op. 2, d. 566, l. 213 "Yearly Report of Enterprise p/ia V-8919 on Basic Activities in 1968" (8 April 1969).
[40] Sharov, *Poisk chetyrekh let*, 30, 32-35. The Shchekino Chemical Combine was not the only enterprise in the chemical industry that dealt with such problems. One study determined that engineers spend between 30 and 50 percent of their time on jobs that could have been performed by workers with fewer skills. See Cherednichenko, "Trudu khimikov," Here, 2(2).

no time for pressing technical repairs or planning.[41] Mismanagement had become a serious impediment to efficiency.

Establishing technically substantiated norms at the Shchekino Chemical Combine entailed the work of scientific and industrial leadership. From late 1966, the laboratory of norms in the department of NOT began testing and implementing production norms in urea, ammonium sulfate, and sulfuric acid production. By September of the following year, this allowed for the release of 39 workers for an effect of 46,000 rubles per annum.[42] The Tula regional institute of the monomer industry developed standards for maintenance work in the caprolactam shop. Together with select workers, specialists collected timekeeping studies, questionnaires, and maps that became the raw data for the production of norms. Individual departments carefully clarified ITR job descriptions in order to make more rational use of workers' skills and eradicate redundant labor.[43] Norms in chemical production differed in important ways from those in labor-intensive industries such as the coal industry. Unlike in the latter, where norms were determined in relation to the worker, in the former, they were associated with machines. The exception was repair work, where, owing to its unpredictable nature, norms were calculated according to clock time. Table 5.5 shows how rapidly norms were developed between 1967 and 1971. Less than a month after the start of the experiment, their implementation had resulted in the release of eighteen repair workers.[44]

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[41] G. Schennikov, ""Stat'i raskhoda" rabochego vremeni," *Khimik* 14 March 1968, 1.
[42] I. Fomin, "Uporiadochivaem normativy po trudu," *Khimik* 28 September 1967, 1.
[43] Sharov, *Poisk chetyrekh let*, 32-33.
[44] GATO f. R – 3469, op. 2, d. 826, ll. 84-88 "Reference (*spravka*) On the Work of the Scientific Organization of Labor Performed at the Shchekino Chemical Combine in 1969 and the First Two Months of 1970" (undated); I. Fomin, "Uporiadochivaem normativy po trudu," *Khimik* 28 September 1967, 1.

Table 5.5
Proportion of Workers Covered by Production Norms

Form of Norms	As of 1.1.1967	As of 1.7.1970	As of 1.1.1971
Time Norms	26.8	70	80
Service Norms	17.3	90	100

Source: GATO f. R – 3469, op. 2, d. 777, l. 194.

Prima facie, the shift to time rates might appear to be simply the fulfillment of the Taylorist dream to commodify the totality of work time.[45] And it certainly was that. But creating a critical mass of time rates workers was also an important precondition for the success of the Shchekino Experiment and the inauguration of flexible production with socialist characteristics. As a rule, periodic premium payments better incentivize time rates workers to improve performance than those paid by the piece; piece rates workers, by definition, need merely produce more pieces to receive a higher wage. In the chemical industry, where continuous flow – as opposed to batch – production is the norm, the ratio of time rates to piece rates is bound to favor the former. Thus, as technology in the Soviet chemical industry improved and chemical workers transitioned to time-based remuneration, bonus payments became more common. By 1969, two out of every three chemical workers were paid time rates plus premiums.[46] Far from embedding Fordist tendencies, the shift to time rates in the chemical industry allowed for the widespread utilization of detailed bonus systems, a hallmark of flexible production.

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[45] On Taylorism and time see Robert Kanigel, *The One Best Way: Frederick Winslow Taylor and the Enigma of Efficiency* (New York: Viking), 203-210.

[46] V. S. Sominskii, *Ekonomika khimicheskoi promyshlennosti* (Moscow: Vysshaia shkola, 1969), 276.

Moreover, there was a direct connection between piece rates and job assignments. As Darrell Slider shows, it was not uncommon for piece rates workers to essentially ignore the plan in favor of prioritizing the overproduction of parts associated with more lucrative rates. The result, in some extreme cases, was workers who received exceptionally high wages for manufacturing products no one needed. The abandonment of piece rates made such behavior impossible. See Darrell Slider, "The Brigade System in Soviet Industry: An Effort to Restructure the Labour Force," *Soviet Studies* 39, 3 (July 1987): 388-405. Here, 389.

Scholars such as Harald Bathelt and Ray Kiely have shown that the transition from Fordist to flexible production was not all-encompassing. Enterprises were more likely to utilize flexible production methods only when it was advantageous for them to do so.[47] So it was at the Shchekino Chemical Combine. Before the Shchekino Experiment began, repair workers were dispersed throughout the enterprise in individual shops where, in Sharov's words, they "did a little bit of everything." This practice was not beneficial for anyone, as workers were so overburdened that they could barely do their own jobs. In this environment, learning new skills was entirely out of the question. From 1968 to 1971 management and the NOT department centralized all repair work. Under the new arrangement, repair workers focused not on a broad number of duties but rather, as Frederick Taylor had long ago taught, on a "narrow range" of tasks that they came to understand very well. There were some complications. In Soviet industry overall, thirty-six percent of workers labored in "harmful" conditions; in the chemical industry that total was seventy-three percent.[48] Repair workers in shops designated "harmful" received hazard pay, and at least a few of them required some coaxing to give up the additional income that came along with working dangerous jobs.[49]

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[47] Harald Bathelt, "Der Einfluss von Flexibilisiergungsprozessen auf industrielle Produktsionstrukturen am Beispel der Chemisten Industrie," *Erdkunde* 49, 3 (July – Sept. 1995): 176-196; Ray Kiely, "Globalization, Post-Fordism, and the Contemporary Context of Development," *International Sociology* 13, 1 (March 1998): 95-115.

[48] GARF f. 5451 (Collection of the All-Union Central Council of Trade Union), op. 68, d. 448, ll. 8-9 "On the Professional Composition of Workers and the Ratio of the Number of Workers Employed in Mechanized and Manual Labor" (31 December 1969).

[49] GARF f. R – 9553, op. 1, d. 66, l. 135 "Iu. Pak, Deputy Chairman of Goskomtrud, to K. K. Cherednichenko, Deputy Minister of the Ministry of the Chemical Industry and P. M. Sharvov" (29 November 1968).

But even this was not absolute and repair workers sometimes did expand their professional profile. Starting in late 1967, eight instrument and automation service shops in caprolactam production were consolidated into one centralized shop comprised of five sections. Initially, NOT workers and engineers prioritized uniting shops near one another. They soon discovered that conjoining repair shops presented

Reorganizing auxiliary work was a different matter. During the 1960s and 1970s the best Soviet social scientific literature stressed the ambiguity of the Soviet social structure. In an increasingly mechanized and complex economy, Soviet scholars found that the lines between social categories such as intellectual, worker, and peasant were becoming blurred. At the Shchekino Chemical Combine, auxiliary and primary work presented a similar conundrum for industrial leaders. The profile of a population of auxiliary workers varied from industry to industry, but in all cases, it differed from that of primary personnel, who were directly involved in the production process. Responsible for tasks such as soldering and countersinking, the fitter (*slesar'*) was one example of an auxiliary worker in the chemical industry. Production work in the chemical industry was typified by the operator, who controlled and monitored chemical processes.[50] In chemical enterprises, there were operators for virtually every product manufactured.[51]

But these divisions were gradually becoming outdated. "What does "auxiliary" mean," Sharov asked rhetorically, "if the operation of powerful, high-performance units depends more on a fitter than on the "main" operator?" "Time," he continued, "changes the usual emphases." This muddiness had real consequences. Though operators required less technical training than fitters, the former made up to twenty percent more than the latter. As a result, it was not uncommon for fitters to seek work as an operator. This was a double loss: on the one hand, Soviet society was deprived of the potential contributions of a specialized worker and on the other the resources invested in training her or him

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new possibilities to combine job duties. As a result, 38 total workers were released. See D. Ivanov, "Vazhny chetkost' i produmannost'," *Khimik* 5 September 1968, 1.

[50] Sharov, *Poisk chetyrekh let*, 44.

[51] For a partial list of operators in the chemical industry see V. I. Potanovich, *Spravochnik-ukazatel' professii rabochikh: Osnovnye proizvodstva SSSR* (Minsk: Vysheishaia shkola, 1983), 87-96.

were essentially wasted. According to Sharov, this was the result of an antiquated division of workers – one he compared to the "table of ranks" established by Peter the Great in the eighteenth century to codify military and court positions – into "primary" and "auxiliary" that no longer had any relevance on the shop floor. Sharov used the leeway afforded to him by the experiment to create what he called a "justice mechanism" to solve the issue independently. Management used funds accrued over the course of the experiment to increase the wages of all 2,217 fitters to equal the income of operators. This maneuver, Sharov commented with some pride, bridged the contradictory wage gap between fitters and operators without costing the state as much as one additional kopeck.[52]

As was the case with repair work, industrial leaders also turned to centralization to rationalize auxiliary services. As late as the mid-1960s, the seventeen shops that comprised the Shchekino Chemical Combine each had their own auxiliary brigades that consisted of five to eight electricians. Because this was hardly enough to complete major jobs, shop leaders were occasionally relegated to the time-consuming task of recruiting electricians from around the enterprise. In the course of the experiment, the enterprise's electricians were condensed and divided into four groups. This alone allowed management to release eight electricians and two foremen. Modest salary increases were awarded to those who remained. United with their machines and tools in more

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[52] Sharov, *Poisk chetyrekh let*, 44, 48-49.

For examples of ambiguity in Soviet social scientific literature see Iu. A. Levada, *Lektsii po Sotsiologii* (Moscow: IKSI AN SSSR, 1969); O. I. Shkaratan, *Problemy sotsial'noi struktury rabochego klassa SSSR* (Moscow: Mysl', 1970); Iu. V. Arutiunian, *Sotsial'naia struktura sel'skogo naseleniia SSSR* (Moscow: Mysl', 1971).

manageable spaces, electricians were able to better coordinate responsibilities.[53] By 1971, management had centralized most auxiliary work at the enterprise.[54]

Rationalizing the production process was the central goal of the Shchekino Experiment. And one effective way to improve labor organization was by dismissing redundant workers. Stephen Kotkin, the architect of the most influential contemporary master narrative of the trajectory of Soviet history, has argued that the Communist Party's commitment to industrial stability was a primary cause of the Soviet Union's failure to compete with liberal political and economic systems. Allegiance to industrial workers, he has suggested, inhibited economic "flexibility" by denying managers the ability to slash production expenditure by terminating laborers.[55] But dismissing workers was not at all a prerequisite of flexible production systems. As Mari Sako, Norma Chalmers, and others have shown, employment security was a crucial element in the effectiveness of Japanese flexible production. Without fear of losing their job, Japanese management found, workers were more likely to contribute to efforts to improve production processes.[56] In this sense it was the United States – where members of the

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[53] "V usloviiakh tsentralizatsii," *Khimik* 22 May 1969, 3. The total number of shops is taken from GATO R – 3469, op. 2, d. 484a, ll. 237-238.
[54] GATO f. R – 3469, op. 2, d. 777, ll. 199-200.
[55] Stephen Kotkin, *Armageddon Averted: The Soviet Collapse, 1970-2000* (New York: Oxford University Press, 2001), 62-64.

For an incisive critique of Kotkin and his master narrative see Anna Krylova, "Soviet Modernity: Stephen Kotkin and the Bolshevik Predicament," *Contemporary European History* 23, 2 (May 2014): 167-192.
[56] Norma Chalmers, *Industrial Relations in Japan: The Peripheral Workforce* (New York: Routledge, 1989), 142;
Katharine G. Abraham and Susan N. Houseman, "Job Security and Work Force Adjustment: How Different Are U. S. and Japanese Practices?" *Journal of the Japanese and International Economies* 3, 4 (Dec. 1989): 500-521; Mari Sako, "Introduction: Forces for Homogeneity and Diversity in the Japanese Industrial Relations System," in *Japanese Labour and Management in Transition: Diversity, Flexibility, and Participation*, eds. Mari Sako and Hiroki Sato (New York: Routledge, 1997), 1-24. Here, 8.

It should be noted that the promise of employment in Japan was likely too informal to be considered a "guarantee" per see. See Makoto Kumazawa, *Portraits of the Japanese Workplace: Labor*

president's Council of Economic Advisors openly discussed the economic benefits of unemployment – that was the exception, not an imaginary Soviet Union where workers were never dismissed.[57]

Indeed, while all Soviet citizens were guaranteed a job, releasing workers was not rare in the Soviet Union. *Socialist Labor*, the monthly journal of Goskomtrud, never tired of publishing articles about the number of workers released thanks to this or that innovation.[58] Nor was anyone shy about discussing why it was positive for the economy to dismiss workers. The economist I. S. Maslova, for example, commented that releasing workers created an "important additional source" of available labor "through the redistribution of released personnel, which greatly helps to alleviate tensions in areas and cities with a shortage of labor."[59]

Under the conditions of the Schekino Experiment, the enterprise was responsible for helping released workers to find new employment. Published in 1973, Sharov's short book *Four-Year Search* explains the process of dismissal and placement. Since at least

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Movements, Workers, and Managers, trans. Andrew Gordon and Mikiso Hane (Boulder: Westview Press, 1996).

This tradition is still alive and well; social scientists focused on contemporary labor mobility in Japan acknowledge that job security remains an important part of work culture there. See Kerstin Teicher, *Zwischenbetriebliche Mobilität in Japan* (Opladen: Leske und Budrich, 1999).

[57] Carl Shapiro and Joseph E. Stiglitz, "Equilibrium Unemployment as a Worker Discipline Device: Reply," *The American Economic Review* 75, 4 (Sept. 1985): 892-893.

[58] For just two examples prior to the Kosygin Reform see I. Pykhova, "Trudoemkost' produktsii – vazhnyi pokazatel' proizvoditelnosti truda v khimicheskoi promyshlennosti," *Sotsialisticheskii trud* 3 (March 1958): 24-28 and L. Maliukha, "Obrazets organizatsii truda na khimicheskoi predpriiatii," *Sotsialisticheskii trud* 10 (October 1964): 64-72. It was no less uncommon in the agrarian sector. See Vladimir Esipov, "Vysvobozhdenie i ratsional'noe ispol'zovanie rabochei sily pod vliianiem tekhnicheskogo progressa pri sotsializme" (PhD [*kandidat*] Dissertation: Moscow Institute of Economics and Statistics, 1972), 74.

For that matter unemployment, at least of the frictional form, was not unheard of in the Soviet Union. See David Lane, *Soviet Labour and the Ethic of Communism: Full Employment and the Labour Process in the USSR* (Boulder: Westview Press, 1987).

[59] *Arkhiv Rossiisskoi Akademii nauk* (ARAN) *fond* (f.) 1877, *opis'* (op.) 8, *delo* (d.) 736, *listy* (ll.) 2 "Economic Reform and the Problem of the Rational Use of Labor Power Released as a Result of Technical Progress" (22 March 1968).

the early 1960s, Soviet scholars had speculated that labor turnover seriously obstructed economic growth in the Soviet Union.[60] By the late 1960s, a team of sociologists working

Table 5.6
Industrial Workforce Turnover in the Soviet Union, 1960-1967

Year	Number of Layoffs Attributable to Turnover	Turnover Rate (in percentage)
1960	2,439,000	18.9
1961	2,685,000	19.6
1962	2,796,000	19.8
1963	2,745,000	18.7
1964	2,782,000	17.6
1965	4,097,000	20.5
1966	4,583,000	21.7
1967	4,850,000	22.2

Source: GARF f. 5451, op. 60, d. 20, ll. 8-10 "On the State of the Reasons for Staff Turnover in Industry and Measures to Reduce it" (undated, probably in early 1969).
*In calculating labor turnover (*tekuchest'*), Soviet statisticians generally included all employees who lost their job either because they were fired (*uvol'nenie*) or because they quit. Workers who left due to military conscription, university education, transfer to another enterprise, or production necessity were not counted against a factory's labor turnover rate.

with the VTsSPS confirmed that labor turnover had been growing steadily. As table 5.6 shows, by 1967, the year the Shchekino Experiment began, well over twenty percent of industrial workers left their place of employment of their own volition, or because management terminated their employment. The Kosygin Reform, of course, tried to use the allure of year-end bonuses to cut down on labor turnover. Management at the Shchekino Chemical Combine, however, chose an entirely different approach. In planning and implementing the Shchekino Experiment, Sharov and his colleagues broke with conventional practice and, rather than struggling against labor turnover, used the phenomenon to its advantage. During the planning phase, managers drew up a list of positions that they deemed unnecessary or redundant. When a worker in one of these jobs

[60] See, for example, I. Kaplan, "Tekuchest' kadrov na predpriiatiiakh i puti ee ustraneniia," *Voprosy ekonomiki* 10 (1963): 45-54; L. S. Bliakhman, A. G. Zdravomyslov, and O. I. Shkaratan, *Dvizhenie rabochei sily na promyshlennykh predpriatiiakh* (Moscow: Ekonomiki, 1965), 35-36.

quit, management simply eliminated the position altogether. In other cases, when a worker resigned from a more important position, management did not conduct an outside search for a replacement. Instead, Sharov continued, it offered the position to those working jobs already targeted for downsizing. As table 5.7 shows, half of the first 1,000 workers, ITR, and white-collar employees dismissed between 1967 and 1970 were simply transferred to vacancies within the enterprise. Similarly, another group – representing up to twenty percent of those released – were offered work at the new synthetic fibers factory built nearby.[61] This was not out of the ordinary. Maslova quoted a sample survey conducted by the Institute of Economics that found that in 1966-1967, up to sixty percent of released workers in the Soviet Union were re-hired by the enterprise that dismissed them.[62]

Sharov was being coy. At least some workers left the Shchekino Chemical Combine for what amounts to disciplinary issues. One article in *Kommunar*, the organ of the Communist Party of the Tula Region, claimed that after the Shchekino Experiment began, the enterprise no longer made efforts to retain workers who "went to work one day but not the next." Institutions such as the factory committee and trade union apparatus, which had once behaved so erratically, suddenly worked effortlessly to expedite the dismissal of unruly workers and truants. Others self-selected. As the dismissals began, the report continued, "those whose conscientiousness did not inspire confidence simply left [the combine]."[63] This may not have been so controversial. When asked how those who violated labor discipline should be reprimanded, one worker at the Shchekino

[61] Sharov, *Poisk chetyrekh let*, 28-30.
[62] ARAN f. 1877, op. 8, d. 736, l. 5.
[63] P. Gavriushov, "Plody eksperimenta," *Kommunar* 15 March 1969. 2.

Chemical Combine replied simply "they should lose their job and be put in prison."[64]

Table 5.7
Placement of First 1,000 Workers, ITR, and Employees Released, 1967-1969

Workers				
Placement	**Total**	**1967**	**1968**	**1969**
Transferred to a Vacancy in the Enterprise	381	143	194	44
Transferred to the Synthetic Fiber Factory	169	47	54	68
Transferred to Other Organizations	13	1	4	8
Dismissed at Their Own Request	91	30	46	15
Laid off for Staff Reduction	30	10	23	-
Drafted into the Ranks of the Soviet Army	56	15	23	18
To Study	19	10	9	-
Total	**759**	**256**	**353**	**153**
ITR and White-Collar Employees				
Transferred to a Vacancy in the Enterprise	120	50	55	15
To the Synthetic Fiber Factory	51	15	16	20
Transferred to Other Organizations	21	8	12	1
Dismissed at Their Own Request	31	10	10	11
Dismissed for Staff Reduction	17	6	11	-
Retired	1	1	-	-
Total	**241**	**90**	**104**	**47**

Source: GATO f. R – 3469, op. 2, d. 777, ll. 202-203.
*Astute readers will note discrepancies between the number released and the number accounted for in table 5.7. Available documents offer no explanation for these inconsistencies. Errors within the table itself have been included to preserve authenticity.

Table 5.8 shows that, of the 800 people dismissed in connection with the Shchekino Experiment in 1967 and 1968, 332 were operators of various stripes, ITR, or white-collar employees. The most effective method for eliminating redundant workers in these categories was the convergence of related production units. First ordered by Sharov in April 1968, the unification of methanol and ammonia shops resulted in the release of

[64] L. Nikulicheva, "Dai ruku, tovarishch sotsiologiia!," *Kommuna*r 6 September 1967, 2.

two shop supervisors, two deputies, nine shift supervisors, and three site supervisors.[65] According to V. Sukharova, the secretary of the party organization of ammonia production at the Shchekino Chemical Combine, these shops were also able to release eighteen ITR.[66] In his analysis of the Shchekino Experiment, the economist I. G. Shilin observed that between ITR and white-collar employees, this merger of methanol and ammonia production also eliminated the need for several dozen workers.[67] Operators were targeted for release for another reason: their principal tasks overlapped with those of primary technology workers, who were also trained to uphold safety regulations and quality standards. Study of the parameters of both professions led management to the conclusion that assigning operators' tasks to primary technology workers would best serve the enterprise's goals.[68]

The process of dismissing workers was relatively scandal free.[69] One reporter wrote that only eight of the first 515 workers to be released appealed management's decision. Of these, just one worker took his case to regional court, which ultimately ruled against the factory.[70] Still, workers did not relish the experience of being released. The anthropologist Stephen Collier has observed that some mid-sized Soviet cities inspired strong solidarity among residents who appreciated intimate social and cultural ties with

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[65] GATO f. R – 3469, op. 2, d. 523a, l. 98 "Order #115 from Sharov" (2 April 1968); Shilin, *Effektivnost' proizvodstva i material'noe stimulirovanie*, 25-26.
[66] V. Sukharova, "Eksperiment prodolzhaetsia," *Khimik* 13 June 1968, 1.
[67] I. G. Shilin, *Effektivnost' proizvodstva i material'noe stimulirovanie (Ob eksperimente na Shchekinskom khimicheskom kombinate)* (Moscow: Ekonomika, 1969), 40-41.
[68] GATO f. R – 3469, op. 2, d. 777, l. 199.
[69] But the dismissals did cause problem for some administrators. Due to the hasty releases, the Bureau of Rationalization and Invention (BRIZ) was forced to rely on unskilled workers to complete its tasks. This prompted the chairman of the factory committee to appeal directly to Sharov for additional resources for BRIZ. See GATO f. R – 3469, op. 3, d. 9, sv. 3, ll. 438-440 "On the Work of BRIZ and Technical Information (Shashkhina, Valovaia)" (28 November 1968).
[70] Ia. Tolstikov, "Shchekinskii eksperiment: Glavnoe – proizvoditelnost' truda," *Sovetskaia Estoniia* 18 Sept. 1968, 2.

Table 5.8
Releases by Profession

Operators	141
Machinists, Pump Operators	77
Laboratory Assistants, Controllers	68
Fitters, Welders	71
Electricians, Electrical Repair Workers, Instrument Workers	116
Weigher Switchmen (*vesovshchikii*), Special Operators, Track Workers	21
Maintenance Workers, Storekeepers	22
Operators of Overhead Cranes	10
Drivers, Loaders	27
Other	56
ITR and Employees	191

Source: GATO f. R – 3469, op. 2, d. 566, l. 220.

their neighbors.[71] Collier's thesis is supported by *Izvestiia*, the organ of the Soviet government, which noted that, when given an opportunity to choose between changing locales or learning a new profession, the "overwhelming majority" of workers at the Shchekino Chemical Combine chose the latter. The author of the piece attributed this to workers' loyalty to friends and the city.[72] Workers, for their part, developed their own, rather macabre, language for discussing the fate of those released. One dismissed worker approached Sharov to complain that she had "fallen under the experiment," an obvious allusion to being struck by an automobile.[73]

Managers had adapting to do as well. Some were alive to the possibility that the experiment would have a negative effect on released workers. Sharov empathized with those who had studied a particular job for years only to be asked to perform a new one.

[71] Stephen J. Collier, *Post-Soviet Social: Neoliberalism, Social Modernity, Biopolitics* (Princeton: Princeton University Press, 2011), 97-99.
[72] I. Karpenko, "God Shchekinskogo eksperimenta," *Izvestiia* 30 June 1969, 3
[73] Sharov, *Poisk chetyrekh let*, 27.

"It is not easy," he commented, "to convince people to happily change their position."[74] Some tried euphemisms to soften the blow. Anatolii Mokin, the secretary of the party committee of the Shchekino Chemical Combine, commented that "[W]e tried to avoid the word "dismissal (*vysvobozhdenie*)."" Instead, factory leadership talked about "the utilization of [labor] reserves."[75] Behavior also had to change. To prepare for difficult conditions, enterprise leadership would often request planners provide them with space to hire excess labor. Sharov wrote that this tendency was so ingrained in management that it constituted a "psychological barrier" to the implementation of the experiment.[76] They soon adjusted, and industrial leaders began to see some positive elements of the experiment. P. Lupanov, the head of caprolactam production, remarked with some satisfaction that, in the conditions of the experiment, the truants and absentees in his shop were denied a bonus at the end of the year.[77] A. Kazantsev, the head of the bureau of labor and wages under Lupanov, noted that his department had lost 110 workers in 1968. Thanks to their release, labor productivity had increased by thirty-six percent and average wages increased by seven percent. Two hundred and seventy-eight workers in caprolactam production enjoyed a ten to fifteen percent increase in earnings.[78] Sharov, for his part, quickly developed impressive business acumen. Responding to critics who claimed that the enterprise was entirely too methodical in its approach to paying bonuses, Sharov wrote:

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[74] P. Sharov, "Idet eksperiment: Ne chislom, a umen'shem," *Khimik* 5 December 1968, 1-2. Here, 2.
[75] Karpenko, "God Shchekinskogo eksperimenta." 3.
[76] Sharov, "Idet eksperiment," 2.
[77] P. Lupanov, "Tekhnologiia, retabel'nost', zarplata," *Kommunar* 18 September 1968, 2.
[78] A. Kazantsev, "Rastet proizvoditelnost', povyshaetsia zarabotnaia plata," *Khimik* 23 January 1969, 1. Managers in other parts of the enterprise made similar observations. For example, see A. Martynov, "God v usloviiakh," *Khimik* 13 February 1969, 1.

> [I]t seems strange to worry about how to simply "get rid" of economized funds as soon as possible. It is easier to spend money than to make money. For a real business owner, the art of making a profit is precisely the ability to spend intelligently, meaningfully, and calculatingly.[79]

In their classic book *The Second Industrial Divide*, Michael Piore and Charles Sabel elegantly compare methods for training workers under Fordist and flexible systems. According to them, the former relies on formal education structures and training programs that provide workers with a general understanding of production. On-the-job training is atypical if not unnecessary, as workers in the early stages of their career are rarely put in sensitive positions that would allow them to make costly errors. Flexible production, by contrast, prefers workers with a broad range of skills that can "shift from one job to another" with ease. These workers must be able, at times, to contribute to solving immediate problems or finalizing product design.
Acquiring these capabilities would be difficult without extensive on-the-job training.[80]

By the late 1960s, training at the Shchekino Chemical Combine had evolved in such a way that it appeared reminiscent of the systems that Piore and Sabel describe. As the industrial production of chemicals is impossible without complex machinery, an educated workforce is in fact presupposed in that industry. But as the production profile of the Shchekino Chemical Combine expanded, new equipment was introduced, and labor was reorganized, training and retraining of workers took on increased importance. Mid-decade, on-the-job training was non-existent.[81] In 1965, 847 workers at the

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[79] Sharov, *Poisk chetyrekh let*, 50-51.
[80] Piore and Sabel, *The Second Industrial Divide*, 271-275.
[81] On-the-job training was not new in the Soviet Union. As the economist Walter Galenson showed decades ago, it was quite widespread during the 1940s. The difference, however, was that in the Stalin period on-the-job training was typically of "very short duration." See Walter Galenson, "Industrial Training in the Soviet Union," *Industrial and Labor Relations Review* 9, 4 (July 1956): 562-576. Here, 564.

enterprise improved their skill level; two hundred and sixty-two trained at vocational schools while the remaining 585 studied in classrooms and seminars at the combine itself. Two years later, those totals equaled 592, 257, and 335, respectively.[82] In much the same way, many once-dismissed workers were retrained: 123 learned to perform new jobs, 371 acquired the necessary skills to take up a second profession, and 1,245 improved their skill level.[83]

By 1968, a shift was under way. That year, of the 1,540 workers, ITR, and white-collar workers who improved their skills, 172 – or, more than ten percent – did so on the job.[84] Shift supervisors in the new joint compression and air separation shop in methanol and ammonia production completed a six-month on-the-job training assignment; twenty-nine ITRs were scheduled to complete similar instruction at nearby, related enterprises. Minin explains the reasons for the change. Theoretically it was unnecessary for auxiliary workers, for example, to study in order to temporarily perform the duties of a primary technological worker. But to work these positions long term, he argued, workers needed real training. Others simply rejected the idea that some jobs could be learned without the sort of practice that only on-the-job training could provide.[85]

Improved training of all types had a positive impact on work safety. Already in

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[82] GATO R – 3469, op. 2, d. 553, ll. 9, 8. "The Dynamics of Training Skilled Workers at the Shchekino Chemical Combine in 1965" (undated).
[83] S. G. Semin, "Eksperiment po uskoreniiu rosta proizvoditelnosti truda v usloviiakh novoi sistemy planirovaniia na Shchekinskom khimicheskom kombinate," *Khimicheskaia promyshlennost'* 6 (June 1969): 3(403)-5(405). Here, 5(405).
[84] GATO R – 3469, op. 2, d. 566, ll. 225-226. "Preparation and Improvement of Skilled Workers, ITR, and White-Collar Workers at the Shchekino Chemical Combine in 1968" (undated).
[85] Minin, *Effektivnost' Shchekinskogo eksperimenta*, 26-27, 31.
By the 1980s, this was common practice. White-collar workers often completed one year of on-the-job training before beginning their career. See David Granick, *Job Rights in the Soviet Union: Their Consequences* (Cambridge: Cambridge University Press, 1987), 18.

late 1968, Sharov argued that the expansion of work knowledge had rendered obsolete pre-experiment safety regulations. Crane operators, for example, had developed an understanding of safety protocol that was every bit as thorough as anyone else at the combine. Consequently, many no longer needed supervision while working.[86] In cross-training workers, some operators in the caprolactam shop had taken and passed exams to qualify as maintenance personnel; this ensured their ability to work safely and independently with potentially dangerous machines.[87] Management's efforts to improve labor safety continued for the duration of the experiment. In 1970, the technical training department prioritized improving workers' attentiveness to the safe maintenance of equipment.[88]

The focus on training also benefitted the enterprise in ways that Maslova would have appreciated. Minin wrote that during the experiment, the unions were especially focused on training workers to perform a diverse set of skills to create what he called a labor "reserve." Thanks to additional training, he continued, "we [managers and trade union activists] have at our disposal a mass of highly qualified workers of a wide profile" that could temporarily fill in for the ill, those on vacation, or those taking technical examinations.[89] Sharov agreed and stated plainly that, in training 157 auxiliary workers to perform duties that required training in technology, the enterprise had developed a "reserve of workers for the main technological jobs."[90]

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[86] Sharov, "Idet eksperiment," 2.
[87] Minin, *Effektivnost' Shchekinskogo eksperimenta*, 11-12.
[88] GATO f. R – 3469, op. 2, d. 777, l. 202.
[89] Minin, *Effektivnost' Shchekinskogo eksperimenta*, 26-27, 31.
[90] GATO f. R – 3469, op. 2, d. 826, l. 91 "On the Cultural and Technical Growth of Workers at the Shchekino Chemical Combine in Honor of the 100th Anniversary of the Birth of V. I. Lenin" (undated).

Table 5.9
Workers' Training at the Shchekino Chemical Combine, 1967-1970

	1967	1968	1969	1970
Retrained and Trained New Workers	348	462	338	258
Trained in Second Professions	253	515	650	370
Improved Skills				
Workers in Production and Technical Courses	2,681	1,572	1,945	932
ITR and White-Collar Employees in the University of Economic Knowledge	559	247	294	638

Source: GATO f. P – 177, op. 57, d. 132, k. 1230, l. 27 "On Fulfilling the Measure of Implementation of a System of Wages, Organization of Production, Management and Wages, Ensuring a Better Interest of Workers in Improving Labor Productivity and Decreasing the Number of Staff as of 1 January 1971" (1 January 1971).

On-the-job and formal training existed alongside other forms of instruction. A technical library holding over 28,000 books was constructed at the Shchekino Chemical Combine for personnel use; it had 2,744 readers – about thirty-six percent of the workforce – in 1966.[91] Hosted by chief engineer B. I. Lur'e, a conference on technical progress in production convened in early 1967 served as a mini-course on the relationship between technology and the economy.[92] *Khimik* began running a regular feature called "technical page" to inform readers about recent efforts – successful or otherwise – to utilize new machines in production. Makeshift classrooms created in workshops hosted displays of visual aids and regular showings of educational films, played on the enterprise's own projectors, on technological progress.[93]

The Shchekino Method also differed from capitalist flexible production systems

[91] GATO f. R – 3469, op. 2, d. 397, l. 242 "Annual Report of the Enterprise p/ia v-8918 on Main Activities in 1966" (undated).
[92] N. Nikolaeva, "Kurs – Na tekhnicheskii progress," *Khimik* 4 February 1967, 2.
[93] GATO f. R – 3469, op. 2, d. 777, l. 228.

in the way that it distributed profits. At the September 1968 Plenum of the Tula regional committee of the Communist Party, Mokin boasted that in the previous year alone the combine's profits financed a 1,000-ton granary and two residential buildings to be constructed on area collective farms, a school with the capability to serve 964 students, and a campsite on the coast of the Black Sea. Additionally, the enterprise had commissioned the construction of a kindergarten and a 240-patient capacity hospital to be located in the nearby village of Pervomaisk; both projects were nearing completion. These facilities would complement the combine's brand new, and recently opened, campsite on the nearby Upa River.[94] Three years later in 1971, Sharov could add that the combine had built two schools, a hospital, and 30,000 square meters' worth of new housing.[95] He might have also mentioned that these living spaces were fully modernized. By 1970, all of the housing stock controlled by the Shchekino Chemical Combine – in both Shchekino and Pervomaisk – had lighting; ninety-nine percent had indoor plumbing, central heating, and sewage access; and ninety-eight percent included gas services.[96] There had also been improvements at the combine itself. By September 1967, change houses (*bytovki*) for ammonia workers had been remodeled.[97] A new polyclinic opened at the combine in March 1968. Comprised of fifty-two offices – thirty-two more than its predecessor – and in operation around the clock, the polyclinic could treat up to 500 patients in one day.[98]

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[94] GATO f. P – 177, op. 40, d. 16, k. 676, l. 65 "Minutes of the Plenum of the Tula Regional Committee of the Communist Party" (11 September 1968).
[95] GATO f. P – 177, op. 57, d. 30, k. 1218, ll. 85 "Minutes of the 16th Tula Regional Party Conference" (5 December 1971).
[96] GATO f. R – 3469, op. 2, d. 777, l. 230.
[97] B. Sukhar'kov, "Bytovki otremontirovany," *Khimik* 14 September 1967, 1.
[98] M. Alekseeva, "Poliklinika khimikov," *Znamia kommunizma* 22 March 1968, 2.

As the housing and work situation improved, so too did access to cultural amenities. By 1968, the sports sector of the Komsomol of the Shchekino Chemical Combine provided gym and stadium visitors with the opportunity to ski, box, and skate or to play basketball, volleyball, hockey, or chess.[99] The Komsomol cultural organization took members to the circus, the movie theatre, and camping.[100] In June 1968 N. G. Arkad'ev, the chairman of the Communist Party of the Shchekino city executive committee, recognized the Shchekino Chemical Combine's pioneer camp for its preparation for children's summer activities including quizzes, games, exercising, and civil defense competitions.[101]

Soviet scholars typically argued that these so-called "public consumption" benefits represented a part of workers' real income.[102] Attempting to quantify public consumption – including education, medical services, physical culture, health resorts, housing, kindergarten, camps for children, pensions, elderly care, and material benefits for injured workers – in terms of an individual worker's wage is a daunting prospect. But some general observations can be made. Between 1940 and 1966, the state's total

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[99] GATO f. P – 5427 (Collection of the Komsomol of the Industrial Association (*ob"edinenie*) "Azot" in the Shchekino Area (*raion*), Tula Region (*oblast'*), op. 1, d. 90, k. 3, l. 25 "On the Work of the Sports Sector of the Komsomol Committee" (22 April 1968).
[100] GATO f. P – 5427, op. 1, d. 103, k. 4, l. 12 "Minutes of the Komsomol Meeting of the RMZ" (September 1968).
[101] GATO f. P – 1911 (Primary Organization of the Communist Party of the Shchekino City Council [*gorsoveta*]), op. 1, d. 19, k. 2, l. 19 "Minutes of the Party Meeting of the Shchekino City Executive Committee" (24 June 1968).
[102] A. S. Shkurko, "The Industrial Wage System in the USSR," *International Labour Review* 90, 4 (Oct. 1964): 352-364.

Indeed, in their analyses of Western welfare states, scholars do something similar by employing the rubric "social wage" to consider the influence of housing, medical care, and so forth on people's lives. See, for example, Peter Saunders's work, which places the size of the Australian social wage in comparison with that of other developed nations. See Peter Saunders, *Welfare and Inequality: National and International Perspectives on the Australian Welfare State* (New York: Cambridge University Press, 1994), 158-190. For another example see Tom Sefton, "Recent Changes in the Distribution of the Social Wage," *CASE Exclusion Paper* (London: Centre for Analysis of Social Exclusion, November 2002).

spending on public consumption grew by almost ten times from 4.6 billion to just over 45 billion rubles per annum. By contrast, the gross public product grew by 6.2 times and the total national income by 5.4 times.[103] In accordance with the Kosygin Reform, after 1965

Table 5.10
Distribution of Funds, 1967-1970

Year	*Material Incentives (X)	Socio-Cultural and Housing (Y)	**Ratio (Y as a share of X)
1967	2,199,000	461,000	21
1968	2,754,000	443,000	16
1969	***	***	***
1970	2,754,000	436,000	15.8

Source: RGAE f. 459, op. 1, d. 2150, ll. 75-76 "Review of the Nitrogen Industry in the USSR in 1967" (undated); RGAE f. 459, op. 1, d. 3267, ll. 46(ob.)-47, 47(ob.), 48 "Review of the Nitrogen Industry in the USSR in 1968" (undated); RGAE f. 459, op. 1, d. 5975, ll. 29(ob.)-30 "Review of the Nitrogen Industry in the USSR in 1970" (undated).
*denotes in rubles; **denotes in percentage; ***denotes data are unavailable

enterprises financed many of their own urban and industrial improvements through the socio-cultural fund. Between 1967 and 1970, excluding 1969, the socio-cultural fund at the Shchekino Chemical Combine was around eighteen percent of the size of the material incentives fund. This was roughly in line with the rest of the nitrogen industry, where amenities accounted for 16.95 (1967), 16.35 (1968), and 15.7 (1970) percent of workers' bonus remuneration.[104]

James Heinzen and Kristy Ironside have recently put to rest the once common

[103] G. S. Sarkisian, "Obshchestvennye fondy potrebleniia i povyshenie urovnia zhizni," in *Trud i zarabotnaia plata v SSSR*, eds. A. P. Volkov, et. al. (Moscow: Ekonomika, 1968), 381-398. Here, 385.

Gross National Product, or GNP, measures the cumulative value of all final goods and services produced by the means of production owned by a country's citizens over a particular period. By contrast Gross Domestic Product, or GDP, measures the same regardless of ownership.

[104] These totals were calculated using raw data found at RGAE f. 459, op. 1, d. 3267, ll. 85, 87 "Formation (*obrazovanie*) of the Funds of Economic Incentives in the Enterprises of the Nitrogen Industry of the MKhP of the USSR in 1968" (undated).

view that rubles were of little import in the Soviet Union.[105] Indeed, growing wages was an integral part of the party's plan to inspire better work habits at the Shchekino Chemical Combine.[106] Between 1967 and 1970, around eighty-five percent of workers' bonus compensation – that is, not from their base wage – came in the form of rubles.[107] By 1970 more workers, ITR, and white-collar employees received bonuses than had been dismissed during the same time period. Sharov wrote that the average bonus totaled around fifteen rubles, though payouts of thirty or more rubles were not rare.[108] Altogether, these bonus payments represented, on average, between ten and twenty percent of workers' base rate.[109] These were not especially large sums; but nor were they irrelevant. In 1970, the cost of a kilogram of beef was one ruble, ninety-seven kopecks.[110] At the end of the 1960s an industrial worker and her or his family spent around 578 rubles per year on clothing and footwear.[111] Other aspects of the experiment helped grow workers' wages. For example, the combination of mass dismissals and additional training

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[105] James W. Heinzen, *The Art of the Bribe: Corruption under Stalin, 1943-1953* (New Haven: Yale University Press, 2016); Kristy Ironside, *A Full-Value Ruble: The Promise of Prosperity in the Postwar Soviet Union* (Cambridge, MA: Harvard University Press, 2021).

The argument that money was of little relevance in the Soviet Union was most famously put forth by Marxists such as H. H. Ticktin. Ticktin's essential argument was that the Soviet Union's economy of shortages meant that the ruble could not function as the "universal equivalent" of exchange. The fundamental problem with Ticktin's argument is that it assumes that the ruble never functioned as a universal equivalent because it sometimes did not. As the growing literature on consumption in the Soviet Union shows, however, this was most certainly not the case. Ticktin's classic article is H. H. Ticktin, "Towards a Political Economy of the USSR," *Critique* 1, 1 (1973): 20-41.

[106] So, in late 1967 the Central Committee announce that the minimum wage would increase from 27 to 60 rubles per month beginning on 1 January 1968. See "O meropriiatiiakh po dal'neishemu povysheniiu blagosostoianiia Sovetskogo naroda," *Pravda* 27 September 1967, 1; Aron J. Katsenelinboigen, *The Soviet Union: 1917-1991* (New Brunswick: Transaction Publishers, 2009 [1991], 262.

[107] RGAE f. 459, op. 1, d. 3267, ll. 85, 87.

[108] Sharov, *Poisk chetyrekh let*, 48-49.

[109] GARF f. 5446, op. 102, d. 195, ll. 88-92 "For Consideration at the Presidium of the Council of Ministers, from S. Tikhomirov of the Ministry of the Chemical Industry and A. Volkov of Goskomtrud" (14 February 1968).

[110] Katsenelinboigen, *The Soviet Union: 1917-1991*, 255.

[111] Natalya Chernyshova, *Soviet Consumer Culture under Brezhnev* (New York: Routledge, 2013), 138.

increased the average wage-rate category of all workers at the combine from 4.6 in 1967 to 4.9 in 1969.[112]

By October 1969, the Shchekino Experiment had earned the praise of the highest political body in the Soviet Union. In a *Pravda* article titled "More Production, Fewer Workers"– a phrase that would later serve as a motto for the experiment – published that month, the Central Committee recommended the application of the Shchekino Experiment throughout the Soviet economy.[113] A national seminar on the experiment was held two months later in Tula. Featuring numerous speakers, the two-day conference was attended by 450 representatives from throughout the Soviet Union. It received front-page coverage in major national newspapers such as *Izvestiia* and *Pravda*.[114] There, Kostandov referred to the Shchekino experiment as "one of the most important courses that has allowed us to make the first big step forward…towards greater labor productivity." S. Novozhilov, the deputy chairman of Goskomtrud praised the experiment for relying on both improved efficiency – in other words, tangible "reserves" – and labor productivity to increase wages. Mokin went even further by suggesting that the lessons of the experiment ought to guide labor standards in the national economy.[115]

Though claims about the experiment's novelty were exaggerated, there was plenty of encouraging news. Figures 5.10 through 5.12 below summarize the results of the Shchekino Experiment between 1967 and 1970. Over its duration, 1,039 workers were

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[112] P. Sharov, "Put' k vysokoi effektivnosti," *Pravda* 12 October 1969, 2.
[113] "Produktsii bol'she, rabotnikov men'she," *Pravda* 9 October 1969, 1.
[114] I. Karpenko, "Opyt Shchekintsev vsem kollektivam," *Izvestiia* 27 January 1970, 1; N. Antonov, "V dobryi put' Shchekinskii opyt!," *Pravda* 29 January 1970, 1.
[115] GATO f. P – 177, op. 55, d. 99, k. 1198, ll. 47, 64, 36 "Minutes of the All-Union Seminar of the Party and Economic Leaders on the Study of the Experience (*opyt*) of the Work of the Party Committee and the Collective of the Shchekino Chemical Combine on Labor Productivity" (22 January 1970).

released from the Shchekino Chemical Combine. The volume of profit increased dramatically. Management was at last able to control the growth of wages in relation to

Figure 5.1
Conference on the Results of the Shchekino Experiment, 1970
Source: GATO f. P – 4008, op. 7 (tom 5), d. 1887, l. 1 "Participants of the Theoretical Conference on the Results of the First Stage of the Shchekino Experiment at the Book Exhibition 1970."

other metrics. Profitability increased by almost twenty times. There was also a veritable revolution in labor productivity and the utilization of labor time. Between 1967 and 1970, labor productivity at the Shchekino Chemical Combine grew markedly. Unlike during the Stalin period, when the aggregate economy grew as a result of a mass introduction of inputs into enterprises, the expansion of production at the Shchekino Chemical Combine in the late 1960s was largely due to more efficient distribution of labor. Whereas in 1966 the enterprise lost an appalling 1,276 hours of labor time per day, as figure 5.15 shows,

by the end of the first stage of the Shchekino Experiment, that number had plummeted to just 363 ($p = 0.021$). The transformation was especially evident in the amount of work time lost to injury. If, in 1966, the total number of on-the-job accidents was fifty-eight, then, by 1970, that number was only forty-two ($p = 0.024$). In 1966, injuries resulted in the loss of 1,519 workdays; in 1970 the total was 1,056 ($p = 0.050$).[116] In short, the accumulation process, whose roots lay in the interwar period, continued, albeit in a very different – less lucrative and much less violent – form.[117] Judging by these key metrics, the experiment had gotten off to a strong start.

But elsewhere, the experiment had produced only mixed results. Personnel stability marginally improved between 1967 and 1970. Labor turnover at the enterprise was already strong by Soviet standards. Whereas in Soviet industry overall, labor turnover exceeded twenty percent in the mid-1960s, at the Shchekino Chemical Combine it was just under eleven percent. Table 5.11 depicts the labor turnover among all workers at the combine between 1966 and 1970. It should come as no surprise that 1967, the first year under the new conditions and the start of the experiment, would represent a sharp upsurge in labor turnover. But thereafter it decreased only marginally.

The performance of the Shchekino Chemical Combine did improve vis-à-vis peer enterprises. The State Research and Design Institute of the Nitrogen Industry and Organic Synthesis Products (GIAP) monitored the performance of those enterprises that produced chemicals – including ammonia, methanol, and caprolactam – that fell within the "core

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[116] GATO R – 3469, op. 2, d. 397, l. 268; GATO R – 3469, op. 2, d. 777, l. 223.
[117] Mark Harrison, "Primary Accumulation in the Soviet Transition," *The Journal of Development Studies* 22, 1 (Oct. 1985): 81-103; Elena Osokina, *Zoloto dlia industrializatsii: Torgsin* (Moscow: ROSSPEN, 2009).

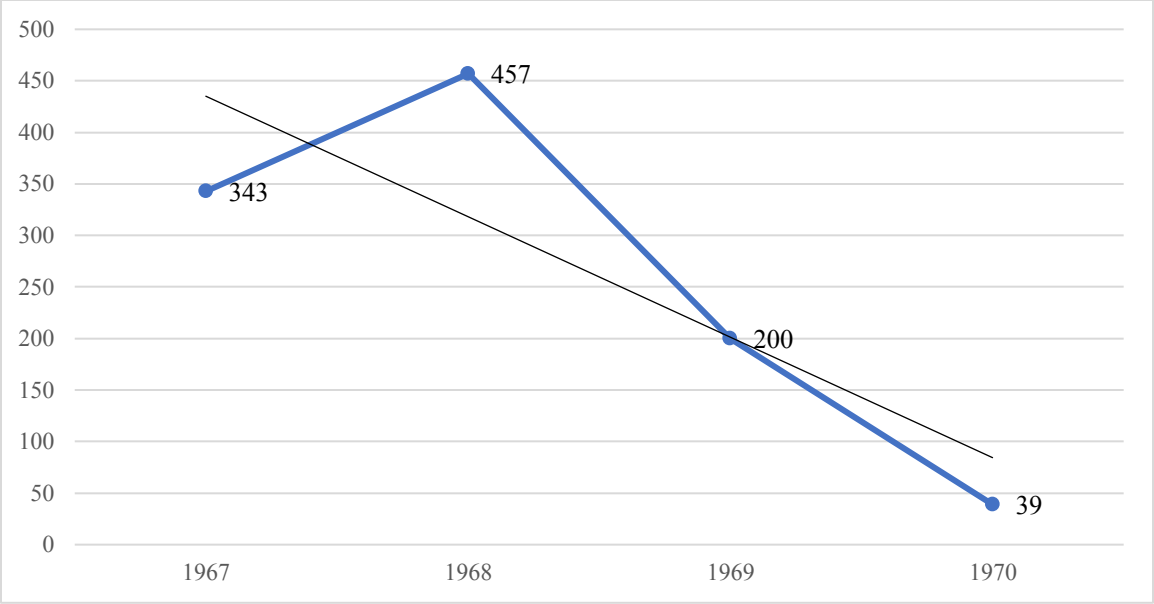

Figure 5.2
Personnel Released, 1967-1970
Source: GATO f. R – 3469, op. 2, d. 883, l. 201 "Annual Report of the Enterprise on its Main Activities and an Explanatory Note for 1971."

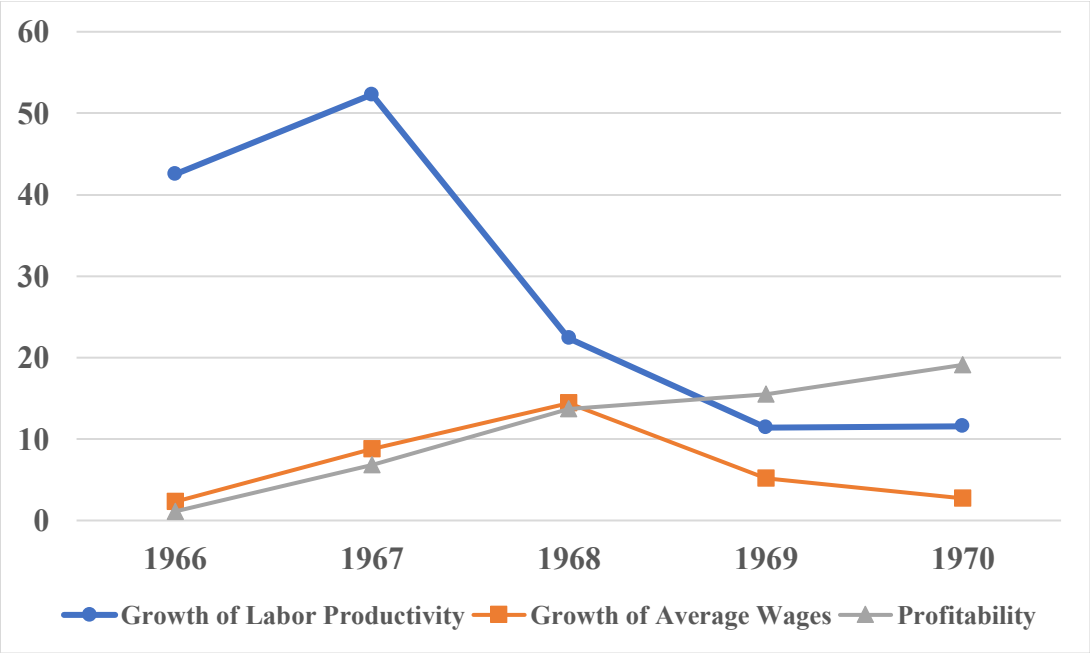

Figure 5.3
Growth of Labor Productivity and Average Wages, 1967-1970
Source: GATO f. R – 3469, op. 2, d. 1036, l. 280 "Main Performance Indicators of the Shchekino Order of Lenin Chemical Plant for 1971-1972: Short History (written by P. M. Sharov, I. A. Minin, V. I. Frolkov, and S. P. Volikova);" GATO R – 3469, op. 2, d. 777, l. 191.

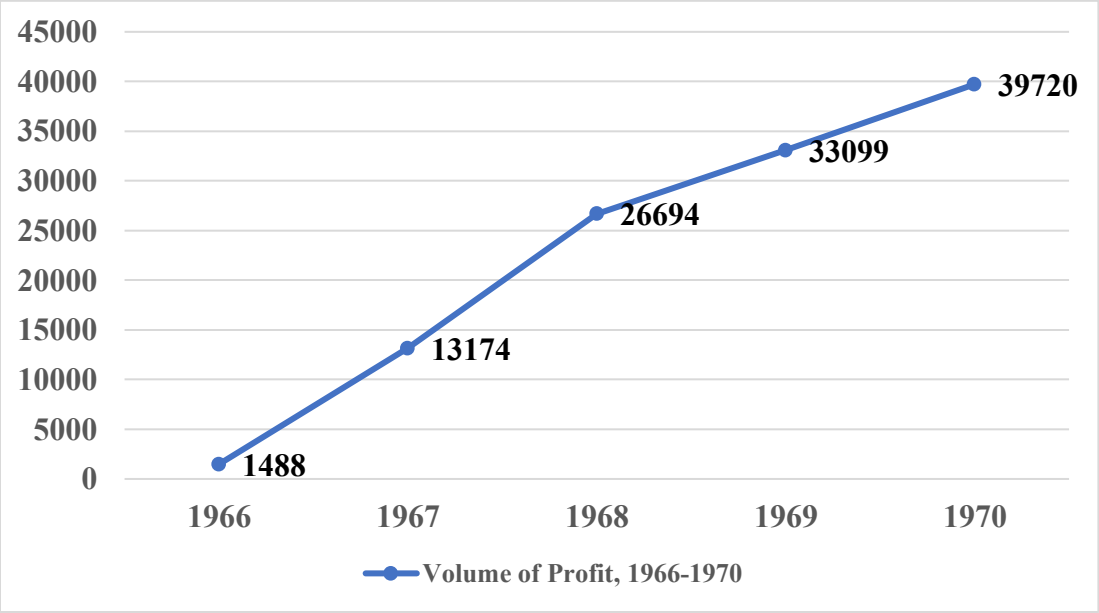

Figure 5.4
Volume of Profit, 1967-1970
Source: GATO f. R – 3469, op. 2, d. 777, l. 191.

Table 5.11
Labor Turnover at the Shchekino Chemical Combine, 1966-1970*

Year	Quit or Fired	Yearly Avg. Staff	Rate (in percentage)
1966	838	7,984	**10.49**
1967	889	7,906	**11.24**
1968	749	7,705	**9.72**
1969	794	8,114	**9.79**
1970	711	6,990	**10.17**

Source: GATO R – 3469, op. 2, d. 397, ll. 285; GATO R – 3469, op. 2, d. 484a, ll. 239, 251; GATO R – 3469, op. 2, d. 566, ll. 223, 227; GATO R – 3469, op. 2, d. 666, ll. 202, 207; GATO R – 3469, op. 2, d. 777, ll. 219, 223.
*The year 1969 also includes data from the newly constructed synthetic fibers factory; the following year, the factory's bookkeeping was separated from that of the Shchekino Chemical Combine.
**Labor turnover in table 5.13 was calculated according to the formula explained under table 5.6 above.

Table 5.12
Labor Productivity, 1966-1970 (in percentage over 1966)

1967	1968	1969	1970
52.3	22.4	11.6	11.6

Source: GATO R – 3469, op. 2, d. 777, l. 192.

Table 5.13
Labor Hours Lost Per Day, 1966-1970

1966	1,276
1967	774
1968	407
1969	582
1970	363

Source: GATO f. R – 3469, op. 2, d. 397, l. 286; GATO f. R – 3469, op. 2, d. 484a, ll. 251-252, GATO f. R – 3469, op. 2, d. 566, l. 223; GATO f. R – 3469, op. 2, d. 666, l. 202-203; GATO R – 3469, op. 2, d. 777, l. 219.

range" of products related to the nitrogen industry. GIAP records show that in 1965, just four out of twenty enterprises in the nitrogen industry failed to fulfill the plan for labor productivity. The Shchekino Chemical Combine was the most egregious example, fulfilling just 63.1 percent (μ = 100.21) of its assigned target (σ = 10.47).[118] By 1968, the enterprise not only fulfilled the plan but, in improving labor productivity by 122.4 percent (M = 106.85),finished third out of twenty-four nitrogen enterprises under the purview of GIAP (IQR = 11.1).[119]

Just as important, the Shchekino Experiment proved that the Soviet system was capable of changing the way it organized production. The Shchekino Experiment inaugurated what this chapter has called flexible production with socialist characteristics in the Soviet Union. Designed to rationalize the production process, the Shchekino Experiment permitted industrial leaders to reassign workers or dismiss them while maintaining the entirety of the wage fund afforded to the factory by state planners. A central component in the experiment was multi-task labor. Learning new jobs and new ways of thinking about enterprise economics meant workers often took on new

[118] RGAE f. 459, op. 1, d. 2150, ll. 7, 158-159 "Labor Productivity: Implementation of the Labor Productivity Plan in 1965 by Individual Nitrogen Industry Enterprises" (undated).
[119] RGAE f. 459, op. 1, d. 3264, l. 43 "Rate of Growth of Labor Productivity and Average Wages in Enterprises of the Nitrogen Industry of the Ministry of the Chemical Industry in the USSR in 1968" (undated).

responsibilities. Enterprise management sought to reward workers for their additional efforts. Party and industrial leaders developed complex methods, including bonus payments and improvements to urban and industrial spaces, to distribute profits among workers. Managerial power intensified. Not only was Petr Sharov, the director of the Shchekino Chemical Combine, entrusted with the usual tasks of ensuring the factory met the plan and protecting its resources; he was also responsible for forming and leading new commissions and delegating tasks – including the implementation of NOT and the payment of bonuses – central to the experiment. But he did not work alone. Goskomtrud, the trade union apparatus, and a collection of social scientists – most importantly Vera Slepykh – all played important roles in developing and implementing the experiment. Technological advances and widespread cross-training in an already capital-intensive industry made it difficult, even for Sharov, to locate who exactly was responsible for production per se. Paradoxically, some production workers – especially operators – constituted the group most likely to be re-assigned or released. As the reorganization of labor aimed to create an interchangeable workforce, it was the workers with the broadest set of skills who most often "fell under the experiment." To ensure that greenhorns understood their new assignments sufficiently, an increasing number of workers began to train extensively and on the job.

The Shchekino Experiment was initially planned to end in 1970. And, despite its initial record, there is no evidence that an extension was in the works until 1969. In addition to providing political support for the diffusion of the Shchekino Experiment, the Central Committee's October 1969 decree also acted as a directive for the Shchekino Chemical Combine. The Central Committee instructed the enterprise's party committee

economic management to "provide for the further heightening of production efficiency, paying special attention to mechanization and automation, the modernization of equipment, and the improvement of technological processes."[120] If, between 1967 and 1970, management at the Shchekino Chemical Combine aimed to reduce the number of workers while growing the rate of production, then in the period that followed – the Shchekino Experiment's "second stage" – it focused on improving the technological base of the enterprise. The latter is the subject of the chapter that follows.

[120] "Produktsii bol'she, rabotnikov men'she," 1.

6: The Persistence of Change: The Shchekino Experiment's Second Stage

In addition to providing political support for the spread of the Shchekino Experiment, the Central Committee's October 1969 decree also served as a directive for the Shchekino Chemical Combine. The Central Committee instructed factory management to pursue production efficiency through "mechanization and automation, the modernization of equipment, and the improvement of technological processes."[1] Enterprise director P. M. Sharov welcomed the new focus. Sharov was well aware of critics who argued that, short of a transition to full automation, the Shchekino Experiment could not serve as the basis of any enduring managerial strategy. Conceding that labor reorganization is, by its nature, "episodic," Sharov pointed out that other elements of the Shchekino Experiment – most importantly technical progress – are "permanent processes." In bringing these features to the fore, Sharov aimed to turn the Shchekino Experiment into a "system."[2] Accordingly, the party committee of the Shchekino Chemical Combine referred to the Central Committee's October decree as the beginning of the experiment's "second stage."[3] As the Shchekino Experiment was extended well beyond its scheduled expiration date, observers and industrial leaders gradually dropped the "experiment" descriptor – and with it all the uncertainty that term entails – in favor of monikers that reflected stability: the "Shchekino Method," or, somewhat less often, the

[1] "Produktsii bol'she, rabotnikov men'she," *Pravda* 9 October 1969, 1.
[2] P. M. Sharov, *Poisk chetyrekh let: Rasskaz o shchekinskom pochine* (Tula: Priokskoe knizhnoe izdatel'stvo, 1973), 75-76, 82-83.
[3] "Eksperiment – vtoroi etap," *Khimik* 17 October 1969, 1.

"Shchekino Experience."[4] The combine also took a new name. In recognition of its "contribution to the improvement of economic reform," on 11 February 1971, the Shchekino Chemical Combine received the Order of Lenin. From then on, it was unofficially referred to as the Shchekino Order of Lenin Chemical Combine.[5]

This chapter discusses the second stage of the Shchekino Method. It shows how the Kosygin Reform continued to structure life, labor, and production in the enterprise well after the end of the eighth five-year plan (FYP, 1966-1970). This is not to suggest that there were no adjustments to the enterprise's program. Whereas the Shchekino Experiment initially focused on rationalizing production and previously neglected economic metrics, such as profit, the second stage of the Shchekino Method also stressed the introduction of new machines. In turn, factory leaders stressed various programs that taught workers new skills and the basics of socialist economics. These two goals – rationalization and automation – were not mutually exclusive. The second stage of the Shchekino Method built on, but did not displace, the first. For industrial leaders and intellectuals alike, this was a challenging evolution to navigate. How to best manage the three enterprise funds, but especially the material incentives fund, was a topic of great concern for several years. Enterprise management found other ways to better work and living conditions: workers' diets, for example, improved, and steps were taken to protect the natural environment in the region. Combined with the significant investment in

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[4] For an early example of the former see A. Plaksin, "Shchekinskii metod na Tbilisskom metropolitene," *Sotsialisticheskii trud* 8 (1970): 37-40; for an example of the latter see A. Kurashev, "Pomog opyt Shchekinskikh khimikov," *Pravda* 1 November 1969, 1.
[5] "Nagrada rodiny zovet vpered," *Khi*mik 18 February 1971, 1; "Orden Lenina – na znameni kombinata!," *Khimik* 4 March 1971, 1.

capital construction, persistent delays in construction work and on-the-job injuries slowed progress such that the enterprise had to temporarily sacrifice the pursuit of profits. None of this, however, constituted – or even inspired – a break with the standards of the Kosygin Reform.

The second stage of the Shchekino Method began to take shape in early 1970. On 21 January L. A. Kostandov, the minster of the chemical industry, sent an order to Sharov outlining the enterprise's goals. Consistent with the Central Committee's decree, Kostandov instructed Sharov and his comrades to prioritize the automation of production and the mechanization of repairs and loading operations. The order also directed Sharov to work in conjunction with the Tula branch of the Automation and Experimental Design Bureau (*Opytno-konstruktorskoe biuro avtomatiki*, OKBA) to install an automated system for "planning, accounting, and management of business activities." To improve local conditions, Kostandov instructed enterprise management to "reduce harmful emissions into the atmosphere." The Minister determined that this would require the complete reconstruction of the four major shops – methanol, urea, caprolactam, and formalin – in the enterprise.[6]

The second stage of the method was designed to run concurrently with the ninth five-year plan (FYP, 1971-1975). It entailed an ambitious set of goals. Besides rebuilding the main production facilities, the Shchekino Chemical Combine also planned to

[6] *Gosudarstvennyi arkhiv Tul'skoi oblasti* (GATO) *fond* (f.) R – 3469 (Collection of the Shchekino Association [*ob"edinenie*] "Azot"), *opis'* (op.) 2, *delo* (d.) 741, *listy* (ll.) 23-26 "On Measures to Further Increase Labor Productivity at the Shchekino Chemical Combine" (21 January 1970).

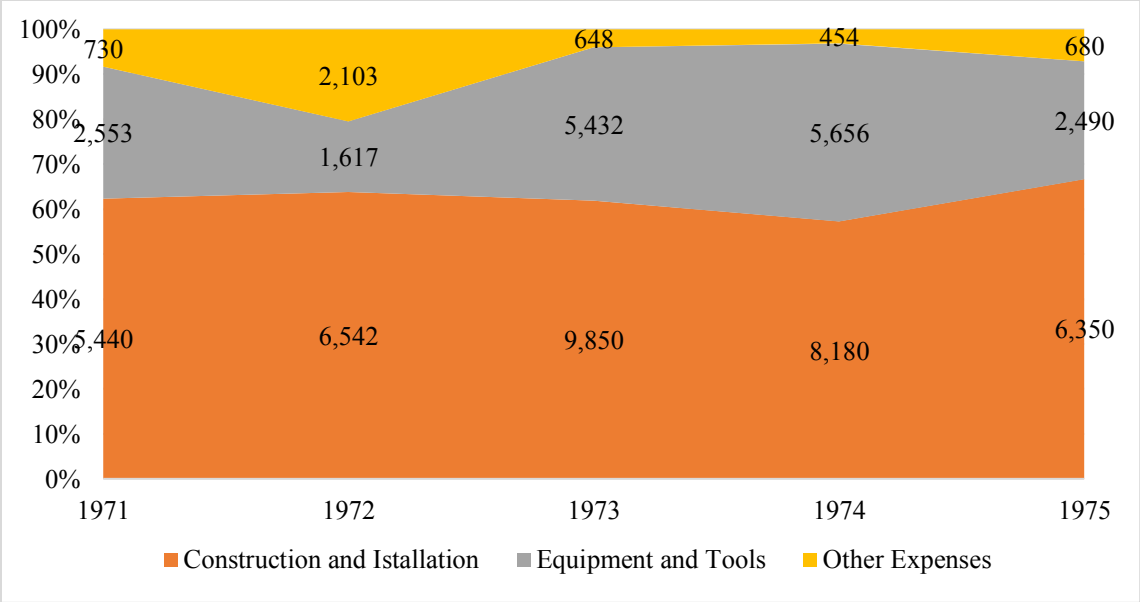

Figure 6.1
Plan for Capital Construction, 1971-1975
*all figures in thousands of rubles
Source: GATO f. R – 3469, op. 2, d. 881, l. 133 "Plan for Capital Construction, 1971-1975" (undated).

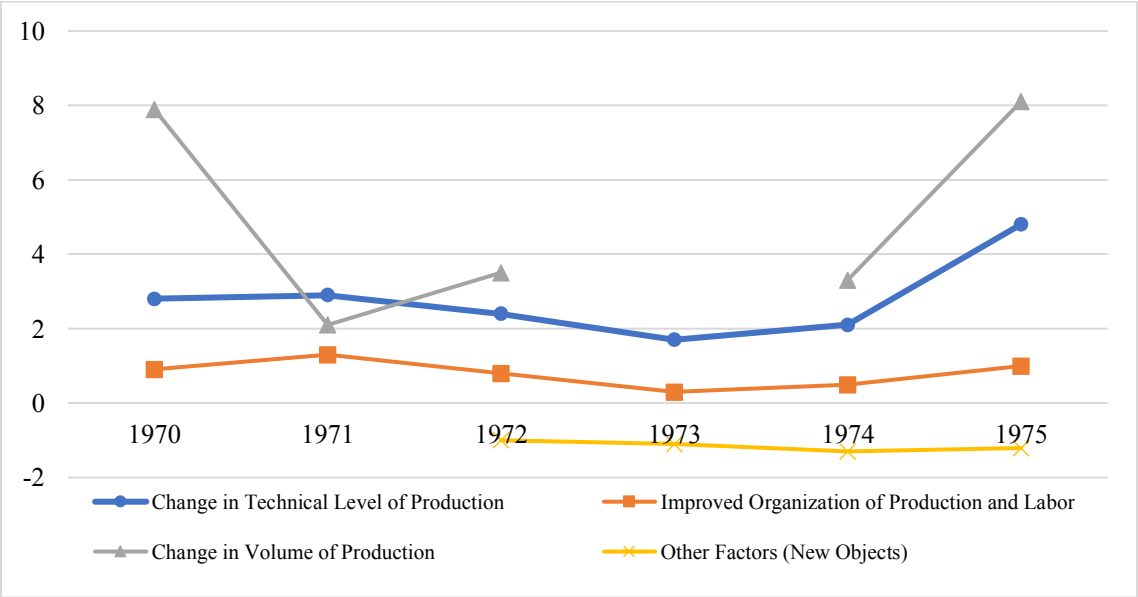

Figure 6.2
Plan for Increase of Labor Productivity by Factor, 1971-1975
*all figures in percent of previous year; figure for 1970 represents achieved mark
Source: GATO f. R – 3469, op. 2, d. 881, l. 158.

implement a host of technologies – including units to capture urea and sulfate dust, both of which can irritate the respiratory tract; special tanks to capture subsidiary methanol vapor in absorption columns; and a cyclone furnace, the first of its kind in the Soviet Union, to safely dispose of caprolactam waste – to curb pollution.[7] There were plans to make other improvements including, for example, the construction of a new canteen.[8] Altogether, just short of 60,000,000 rubles were earmarked for capital construction. As figure 6.1 shows, around sixty percent of that total was designated for investment in construction and installation. Figure 6.2 demonstrates that planners expected the bulk of production growth to come from technical progress rather than, as in the first stage of the experiment, labor reorganization. B. I. Lur'e, the Shchekino Chemical Combine's chief engineer, estimated that after the second year of their full implementation, the introduction of new technologies would save the enterprise 3,256,600 rubles per annum.[9]

None of this should suggest, however, that the second stage of the Shchekino Method represented an abandonment of the priorities of the late 1960s. As Vera Slepykh, the Shchekino Chemical Combine's chief economist, put it in 1971: "[i]n essence, the Shchekino [E]xperiment…is aimed at improving the [Kosygin] [R]eform."[10] Indeed,

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[7] GATO f. R – 3469, op. 2, d. 881, ll. 207-210 "Primary Activities to Improve Working Conditions and Safety, to Strengthen the Health of Employees in 1971-1975, at the Shchekino Order of Lenin Chemical Plant" (undated); G. Egorov, "Na kliuchevykh pozitsiiakh," *Znamia kommunizma* 27 May 1972, 2.
[8] GATO f. P – 177 (Collection of the Communist Party of the Tula Region), op. 57, d. 80, k. 1224, l. 72 "Speech by Mokin, Secretary of the Party of the Shchekino Chemical Combine, at the Meeting of the Tula Regional Party *Aktiv*" (11 March 1971).
[9] GATO f. R – 3469, op. 2, d. 881, ll. 46-48 "Plan for the Introduction of Advanced Technology, Mechanization and Automation of Production, 1971-1975" (17 March 1972).
[10] *Arkhiv Rossiisskoi Akademii nauk* (ARAN) *fond* (f.) 1877 (Collection of the Institute of Economics of the Russian Academy of Sciences), *opis'* (op.) 8, *delo* (d.) 1008, *listy* (ll.) 21-22 "Stenograph Report of the

many of the responsibilities of the first stage of the experiment carried over into the early 1970s. Kostandov, for example, charged the department of the scientific organization of labor (NOT) at the factory with familiar tasks including reducing the proportion of manual labor and expanding service areas.[11] The combine's assignments for the ninth FYP only furthered the continuity Slepykh observed. The plan called for the Shchekino Chemical Combine to increase sales by over thirty percent and profit by over fifty percent. Just as important, the three enteprise funds – material incentives, socio-cultural and housing, and production – were each scheduled to grow by over forty-six percent. Finally, management expected to release over 200 workers between 1971 and 1975.[12]

Clearly, machines were to weigh heavily in the evolution of flexible production with socialist characteristics.[13] It is no secret that Soviet political leaders were fascinated by the promises of production technologies.[14] In the context of the ninth FYP, mechanization, and technological progress more generally, took on even more meaning.[15]

Symposium of the Leningrad Branch of the Institute of Economics on "Methods of Measuring and Stimulating the Growth of Labor Productivity."" (24 December 1971).

[11] GATO f. R – 3469, op. 2, d. 741, ll. 23-26.

[12] GATO f. R – 3469, op. 2, d. 881, ll. 3, 5, 7, 12-13 "Primary Indicators of the Enterprise's Five-Year Plan for 1971-1975" (17 July 1971); l. 160 "Release of Workers and Employees, 1971-1975" (undated).

[13] By no means should this suggest that the relationship between technology and flexible production systems is clear. It just happened to be so in the Soviet case. For different viewpoints on this matter see Christopher Freeman, John Clark, and Luc Soete, *Unemployment and Technical Innovation: A Study of Long Waves and Economic Development* (Westport: Greenwood Press, 1982); Chris Freeman and Carlota Perez, "Structural Crisis of Adjustment, Business Cycles, and Investment Behaviour," in *Technical Change and Economic Theory*, eds. Giovanni Dios, et. al. (London: Pinter Publishers, 1988), 38-66; Raphael Kaplinsky, "Restructuring the Capitalist Labour Process: Some Lessons from the Car Industry," *Cambridge Journal of Economics* 12, 4 (Dec.1988): 451-470; Andrew Sayer, "Postfordism in Question," *International Journal of Urban and Regional Research* 13, 4 (Dec. 1989): 666-695; Ulrich Jürgens, Thomas Malsch, and Knuth Dohse, *Breaking from Taylorism: Changing Forms of Work in the Automobile Industry* (New York: Cambridge University Press, 1993), 82.

[14] See, for example, Paul R. Josephson, *Would Trotsky Wear a Bluetooth?: Technological Utopianism under Socialism, 1917-1989* (Baltimore: John Hopkins University Press, 2010).

[15] On the ninth FYP see "Direktivy XXIV s"ezda KPSS po piatiletnemu planu razvitiia narodnogo khoziaistva SSSR na 1971-1975 gody," *Pravda* 11 April 1971, 1-7.

In the early 1970s, waves of publications in the academic and popular presses appeared centered on a phenomenon the Communist Party referred to as the scientific-technical revolution (*nauchno-tekhnicheskaia revoliutsiia*, NTR).[16] Two influential social scientists defined NTR as:

> not a conglomerate of individual discoveries and inventions but a fundamental transformation of the entire productive system: it is a revolution in the means and objects of labor, in technology and production organization and in its energy base arising out of scientific discoveries.[17]

NTR arrived at the Shchekino Chemical Combine in 1970. That year, the enterprise became one of several hundred Soviet enterprises to install an Automated Management System (ASU). ASUs were factory-level information systems comprised of computer hardware, software, and factory personnel that managed economic and production processes through automated feedback loops. ASUs were not fully systematized networks; workers ultimately made final decisions based on their output.[18] The first ASU installed at the Shchekino Chemical Combine managed the production of formalin. S. Shcheglov, a journalist working in the Tula region, explains how it functioned. From the enterprise, the ASU sent data – including temperature readings and unit air pressure levels – to the Tula branch of OKBA, which relayed them to the OKBA computer center in Moscow. There, the information was analyzed and directives for

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[16] On NTR see Julian M. Cooper, "The Scientific and Technical Revolution in Soviet Theory," in *Technology and Communist Culture: The Socio-Cultural Impact of Technology Under Socialism*, ed. Frederic J .Fleron, Jr. (New York: Praeger, 1977), 146-179.
[17] L. S. Bliakhman and O. I. Shkaratan, *NTR, rabochii klass, intelligentsiia* (Moscow: Politizdat, 1973), 313.
[18] Aleksei Kuteinikov, "Proekt Obschegosudarstvennoi avtomatizirovannoi sistemi upravleniia sovetskoi ekonomikoi (OGAS) i problem ego realizatii v 1960–1980-x gg" (PhD dissertation: Moscow State University, 2011), 4 fn*. Also see William J. Conyngham, "Technology and Decision Making: Some Aspects of the Development of OGAS," *Slavic Review* 39, 3 (Sept. 1980): 426-445.

technical corrections were returned to the Shchekino Chemical Combine via the Tula branch of OKBA. Back in Shchekino, workers made appropriate adjustments to ensure production quality and worker safety. According to Shcheglov, the Shchekino Chemical Combine's ASU could economize up to 109,000 rubles annually. This system served as a model. In 1970, it was recognized at the Exhibition of Achievements of National Economy in Moscow. Later, the same ASU was installed in chemical factories in three other cities in the Soviet Union.[19]

Some Soviet cyberneticians envisioned a nationwide network of ASUs that could manage production through the same sort of local-regional-central framework utilized in formalin production at the Shchekino Chemical Combine. Though this ultimately did not come to pass, ASUs did enjoy some influence in chemical production in the early-to-mid 1970s.[20] By 1970, two chemical enterprises in the Ukrainian republic put into operation the "first stages" (*pervye ocheredi*) – a phrase sometimes used to differentiate a general form of ASU from the "sub-industry" (*podotrasl'*) sort implemented in Shchekino – of an ASU. They were joined the following year by one enterprise each in the Belorussian and Uzbek republics.[21] In 1974, the Shchekino Chemical Combine joined their ranks. Among other things, this second ASU network in Shchekino was capable of rapidly analyzing raw materials, calculating energy cost per unit of output, and monitoring energy flows

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[19] S. Shcheglov, "Tvortsy avtomatiki," *Kommunar* 24 March 1970, 2.
[20] Benjamin Peters, *How not to Network a Nation: The Uneasy History of the Soviet Internet* (Cambridge: MIT Press, 2017), 86, 109.
[21] Iu. M. Lukzhkov, "Vazhneishie zadachi avtomatizatsii v khimicheskoi promyshlennosti," *Khimicheskaia promyshlennost'* 1 (January 1973): 3(3)-6(6). Here, 4(4). For the use of "sub-industry" to refer to limited forms of ASU see, for example, M. G. Vasil'ev and O. V. Golovanov, "Sozdanie otraslevoi avtomatizirovannoi sistemy upravleniia," *Khimicheskaia promyshlennost'* 1 (January 1971): 7(7)-10(10). Here, 9(9).

throughout the factory. Industrial leaders estimated that the implementation of the first stage ASU saved around 125,000 rubles, mostly through the conservation of raw materials, at the Shchekino Chemical Combine in 1974.[22]

Other efforts to grow the computational and technical power of the enterprise were less successful. In preparation for the arrival of a Minsk-32 – an indigenous, second-generation computer capable of handling both scientific-technical as well as economic tasks – the Shchekino Chemical Combine sent eleven workers to Minsk to study the basics of computing technology in the spring of 1970.[23] The device arrived that summer but, according to Sharov, it could not immediately be put into operation. Not only had construction workers failed to refurbish the computer room on time, but locating specialists to program the Minsk-32 had also proven difficult.[24] In the fall, the device was installed and put into operation, though programming changes continued until late the following year.[25] Plans to install a second Minsk-32 in 1975 fell behind schedule because the enterprise's repair and construction shop was unable to hire enough workers to finish the job.[26] This may not have been much of a loss. Ivan Iunak, the first secretary of the

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[22] GATO f. R – 3469, op. 2, d. 1189, ll. 199, 255 "Annual Report on Main Activities in 1974" (31 March 1975).

Not counting the training and retraining of workers to operate the system, the ASU cost 220,000 rubles, or around forty-five percent of the enterprise's centralized production fund.

[23] "Elektronno – vychislitel'nyi tsentr," *Khimik* 5 March 1970, 2. On the Minsk-32 see V. V. Przhiialkovskii, G. D. Smirnov, V. Ia. Pykhtin, *Elektronnaia vychislitel'naia mashina "Minsk-32"* (Moscow: Statistika, 1972).

In 1970, the developers of the Minsk-32 and its predecessors, the so-called "Minsk family of computers," were awarded the USSR State Prize. See L. Brezhnev and A. Kosygin, "O prisuzhdenii Gosudarstvennykh premii SSSR 1970 goda v oblasti nauki i tekhniki," *Pravda* 7 November 1970, 3-4.

[24] P. M. Sharov, "Pered vtorym etapom eksperimenta," *Khimik* 30 July 1970, 1-2. Here, 2.

[25] L. Pedchenko, "Idet naladka EVM," *Khimik* 17 October 1970, 2; S. Shcheglov, "V ocher' svetloi komnate," *Kommunar* 5 November 1970, 2; G. Pavpertov, "Pervye shagi vychislitel'nogo," *Znamia kommunizma* 25 December 1971, 2.

[26] GATO f. R – 3469, op. 2, d. 1285, l. 167 "Annual Report on Main Activities in 1975" (12 April 1976).

Tula regional party committee from 1961 until 1985, was not impressed by the performance of the Minsk-32. At a meeting of the Tula regional party activists in March

Figure 6.3
The Minsk-32 at the Shchekino Chemical Combine
Source: GATO f. P – 3994, op. 7 t.5, d. 1873, l. 1 "Workers Adjust the "Minsk – 32" in the Electronic Computing Center of the Shchekino Chemical Combine" (1970).

1972, Iunak testified that the computers had failed to have a significant impact at other area enterprises. "These machines," he commented, "solve only three [technical] problems out of a possible twenty. Judge for yourself how many more years it will take to implement automated systems on this basis."[27] A 1974 update noted that the Minsk-32

[27] GATO f. P – 177, op. 60, d. 53, k. 1253, l. 127 "Minutes of the Meeting of the Tula Regional Party *Aktiv*" (17 March 1972).

did little more than track consumption of some inventory.[28]

Further mechanization required a renewed commitment to workers' education. One opinion piece in *Kommunar* argued that the second stage of the Shchekino Experiment could not succeed without "strengthen[ing] educational work" and the "[skill] requirements for personnel."[29] V. Salomykov, the head of the automation site at the enterprise, argued that increased automation necessitated well-rounded workers. "[H]ighly qualified specialists," he wrote, "are required both among fitters and ITR" throughout the combine, but especially in instrumentation and automation (*kontrol'no-izmeritel'nye pribory i avtomatizatsiia*, KIPiA) services.[30] Commenting on the importance of education for maintenance and repair workers, one author wrote "how can you do this work without knowing the laws of physics and chemistry?"[31] There was reason to believe that workers were up to the challenge. "During the first stage [of the experiment]," I. Minin, the chairman of the Shchekino Chemical Combine's trade union committee, wrote, "workers have grown, their skills have improved, and their technical knowledge has expanded." Workers could be entrusted with more complicated responsibilities, Minin implied, because they were prepared to handle them.[32]

The connection between factories and workers' education in the Soviet Union is well known. In the 1920s, working-class youth received general education and professional training at factory-based schools supported by the Komsomol.[33] Mid-

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[28] N. Seregin, "Na Shchekinskom khimicheskom…," *Znamia kommunizma* 14 December 1974, 2.
[29] "Po Shchekinskomu primeru," *Kommunar* 22 January 1970, 1.
[30] V. Salomykov "Nashi zadachi vo vtorom etape eksperimenta," *Khimik* 18 December 1969, 2.
[31] A. Shchkol'nikov, "Nachat' eshche ne pozdno," *Khimik* 14 January 1971, 1.
[32] I. Minin, *Effektivnost' Shchekinskogo eksperimenta* (Moscow: Profizdat, 1970), 72.
[33] Anna Krylova, "Imagining Socialism in the Soviet Century," *Social History* 42, 3 (July 2017): 315-341.

century, workers could gain practical, work-based knowledge in six- to ten-month courses in factory and mining schools.[34] From the 1960s, education at the Shchekino Chemical Combine remained closely connected to production.[35] Between 1966 and 1971, around 600 of the combine's workers graduated from technical or secondary schools. This preparation allowed them to work on more complex machinery, manage chemical technology, and perform multiple professions. Though Sharov offered 275 rubles to the shop leader who most effectively encouraged workers to complete their secondary education, progress remained uneven.[36] In 1972, 2,920 workers and engineers, or almost half of the personnel at the combine, received some sort of education.[37] By 1974, that number had climbed to over 5,781.[38] Over 1,000 workers learned an additional profession between 1972 and 1973.[39] On the other hand, as late as 1973 the enterprise still employed

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[34] Mervyn Matthews, *Education in the Soviet Union: Policies and Institutions since Stalin* (Boston: Allen & Unwin, 1982), 68-69.

[35] This was consistent with national trends. See "Doklad General'nogo sekretaria TsK tovarishcha L. I. Brezhneva," *Pravda* 30 March 1966, 2-9; "Rech' tovarishcha L. I. Brezhneva," *Pravda* 13 June 1970, 1-3. Here, 1.

[36] GATO f. R – 3469, op. 2, d. 859, ll. 248-249 "Order #700" (20 December 1971); "Doklad General'nogo sekretaria TsK tovarishcha L. I. Brezhneva," *Pravda* 31 March 1971, 2-10. Here, 9.

[37] GATO f. R – 3469, op. 2, d. 997, l. 245 "Yearly Report of the Enterprise on its Main Activities for 1972" (22 March 1973).

[38] GATO f. R – 3469, op. 2, d. 1189, l. 231.

[39] GATO f. R – 3469, op. 2, d. 997, l. 245; GATO f. R – 3469, op. 2, d. 1100, l. 232 "Annual Report on the Main Activities of the Enterprise and an Explanatory Note for 1973" (undated).

These education programs did not work perfectly. Regional party leaders chastised several districts for failing to explicitly connect theoretical economic knowledge to practical tasks at the workplace. See GATO f. P – 177, op. 62, d. 135, k. 1280, l. 8 "On the Results of the 1972-1973 Academic Year in the System of Party Studies and Economic Education of Workers" (undated); "Uluchshat' ekonomicheskoe obrazovanie trudiashchikhsia," *Partiinaia zhizn'* 22 (1971): 3-7. Here, 4. But Shchekino was not necessarily an outliner on this issue. On at least two occasions *Pravda* criticized organizations for emphasizing the number of students educated over the quality of instruction provided. See Iu. Zakharov, "Ekonomicheskoe obrazovanie – Velenie vremeni," *Pravda* 25 Nov. 1972, 2; "Ekonomicheskoe obrazovanie," *Pravda* 18 Oct. 1973, 1.

In other cases, education was deemed too superficial to be useful. In 1973, seventeen factory economic study circles in the Shchekino district were discontinued without explanation. And, despite growing political demand for their services, the district cut the number of workers qualified to lecture in economics and related subjects between 1972 and 1973. See GATO f. P – 177, op. 66, d. 127, k. 1318, ll. 6,

399 young workers without a secondary education.[40] By 1974, that total had climbed to 435. Of those, only 129 were enrolled in the enterprises' night schools that had been founded to help workers graduate.[41]

Figure 6.4
P. M. Sharov and I. Kh. Iunak
Source: GATO f. P – 5682, op. 1, d. 905, ll. 1 (1976).

To suit the changing socioeconomic and intellectual landscape, the party also sought to improve workers' economic education. In September 1971, the Central

10-11, 18 "On the Implementation of the Resolution of the Central Committee of the Communist Party "On Improving the Economic Education of Workers" in the Tula Region" (1 February 1974); "On the Structure of Economic Education in the Tula Region in 1973 and 1974" (undated); "On the Promotion of Economic Knowledge carried out by the Regional Organization of the "*Znanie*" Society" (undated).
[40] GATO f. R – 3469, op. 3, d. 20, sv. 6, l. 8 "Minutes of the All-Plant Trade Union Conference" (20 February 1973).
[41] G. Podlinnykh, "Nuzhen individual'nyi podkhod," *Khimik* 7 August 1974, 2.

Committee wrote that training in economics should be seen as "a mandatory, important aspect of the qualifications of every worker." The decree stressed the importance of practical, rather than abstract, training. "The economic education of the working people," it declared, "must be closely coordinated with the organization of all economic work at enterprises."[42] An organized, nationwide "extensive system of economic education" began operating the following year.[43]

Workers in all industries were assigned classes in fourteen different subjects for a total of sixty hours' worth of study. The goal of the curriculum was to produce a worker able to "increase the economic efficiency of production" independently. Courses for workers stressed, among other things, economic management, production organization, and Marxist-Leninist theory, in particular the directives of the twenty-fourth party Congress.[44] Held in the spring of 1971, this conference reaffirmed the party's commitment to the economic categories – including profit, NOT, and material incentives – that had been at the center of Soviet economic thinking and economic policy since the late 1950s.[45]

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[42] "Ob uluchshenii ekonomicheskogo obrazovaniia trudiashchikhsia," *Pravda* 16 September 1971, 1.
[43] "Ekonomicheskomu obrazovaniiu – postoiannoe vnimanie," *Pravda* 18 October 1972, 2.
[44] N. Klepach, "Ekonomicheskoe obrazovanie trudiashchikhsia," *Voprosy ekonomiki* 9 (Sept. 1972): 100-108.
[45] "Doklad General'nogo sekretaria TsK tovarishcha L. I. Brezhneva," *Pravda* 31 March 1971, 7.

Likewise, the authors of a contemporary economics textbook wrote that all workers needed to understand "labor productivity, profit, and profitability" to fulfill the economy's potential. See A. A. Baranov and A. F. Rumiantsev, *Osnovy ekonomicheskikh znanii: Uchebnoe posobie dlia rabochikh* (Moscow: Politizdat, 1973), 7.

The twenty-fourth Congress is sometimes criticized for inaugurating the concept of "developed socialism," a conservative appraisal of Soviet society that supposedly foreshadowed "stagnation." See Joachim Zweynert, "'Developed Socialism' and Soviet Economic Thought in the 1970s and Early 1980s," *Russian History* 41, 3 (June 2014): 354-372.

The content of economic and technical training was determined on a branch-by-branch basis.[46] An article written by S. Z. Pogostin, an economist specializing in chemical production, and published in *Chemical Industry*, the main journal of the Ministry of the Chemical Industry, in 1972 describes the sort of education provided to managers in that industry. Shop leaders were assigned ninety hours of coursework including classes on labor productivity (four hours); material and moral incentives (six hours); production funds (two hours); automation (six hours); the cost and profitability of production (four hours); NOT (six hours); and the implementation of the Shchekino Method (four hours). Led by plant economists, NOT personnel, and researchers from nearby universities, classes were divided into lecture and seminar components.[47]

Economic education at the Shchekino Chemical Combine was delivered in a variety of ways. By the early 1970s, the enterprise's workers studied economics and related subjects in six political schools, a school for working youth, technical schools, or one of several study circles organized by the Komsomol.[48] Students in their ninth year of study in schools of Marxism-Leninism were enrolled in a two- to three-year class called "the fundamentals of economics and production management."[49] In the KIPiA shop, workers discussed practical problems "from the life of the chemical plant" in seminars arranged by the economist Liudmilia Satarova. This applied focus enabled

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[46] "Ekonomicheskie znaniia – kazhdomu," *Pravda* 14 April 1972, 2.
[47] S. Z. Pogostin, "Ekonomicheskoe obrazovanie kadrov na predpriiatiiakh khimicheskoi promyshlennosti," *Khimicheskaia promyshlennost'* 10 (Oct. 1972): 4(724)-6(726).
[48] V. Sukhar'kov, "Ekonomicheskoi uchebe – shirokuiu dorogu," *Znamia kommunizma* 21 December 1972, 2.
[49] A. Lobanova, "Izuchaem ekonomiku," *Khimik* 29 September 1973, 1.

some students to simultaneously increase their technical qualifications.[50] The schools of the "communist attitude to labor" were responsible for "wide dissemination of economic knowledge among all categories of workers" at the combine. Together with the people's universities, these organizations provided chemical workers with a general education in economics.[51] In 1972, M. L. Razu, an economist from the Moscow Economics and Engineering Institute, visited the enterprise on two occasions to deliver lectures on the "connection between [economic] theory and practice."[52] Schools of advanced methods of labor promoted exceptional workers and work methods. In 1973, worker-students in these schools studied the example of N. F. Artiukhov, a senior operator in the hydroxylamine sulfate shop of the caprolactam factory. Artiukhov was recognized for his strong work discipline – he showed up half an hour early every day – and meticulous attention to production quality.[53] The following year, they focused on M. N. Makhan'kov, a turner in the repair and mechanical factory (*remontno-mekhanicheskii zavod*, RMZ), who could perform four jobs – a turner, a fitter, a milling machine operator, and a planer – with great diligence and composure.[54]

How were workers compensated for their labor during the second stage of the Shchekino Method? Managing bonus payments was a hot-button issue from the early

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[50] "Trudu podmoga," *Khimik* 12 July 1972, 1.
[51] "V tsentre vnimaniia – ekonomika," *Znamia kommunizma* 11 August 1972, 2.
[52] *Gosudarstvennyi arkhiv Rossiisskoi federatsii* (GARF) *fond* (f.) P – 5470 (Collection of the Central Committee of the Trade Union of the Workers of the Chemical and Petrochemical Industries), *opis'* (op.) 29, *delo* (d.) 3559, *listy* (ll.) 138 "Information on the Results of Verification of the Central Committee of the Communist Party "On Improving the Economic Education of Workers"" (9 April 1973).
[53] GATO f. R – 3469, op. 2, d. 1157, ll. 1-4 "Advanced Methods and Techniques of Work" (undated).
[54] GATO f. R – 3469, op. 2, d. 1245, l. 2 "Work Experience of M. N. Makhan'kov." (undated, probably spring 1974).

1970s. In an article published in *Literaturnaia gazeta* in 1970, Sharov exposed a problem with the logic of the experiment. The Shchekino Experiment was designed to motivate enterprise leaders and workers alike to locate and exploit production reserves. According to Sharov, during the first stage of the experiment, most of the enterprise's resources had indeed been put to use. Like S. Shkurko had argued six years earlier, Sharov observed that, without reserves, the enterprise would lose the primary source of funds for paying out bonuses. Under the conditions of the experiment, as long as the combine continued to improve labor productivity, it could reasonably expect to reward its workers consistently. But this could only work so long as central planners, industrial ministries, and enterprises were on the same page. The crux of the issue, according to Sharov, was that planners and the ministry had abandoned the original parameters of the experiment and returned to the dreaded ratchet principle: in short, these institutions increased the enterprises production quotas vis-à-vis previous norms. Sharov expected industrial leaders to respond to his very public complaint sympathetically. Inaction, he argued, would "threaten the reputation of the experiment itself."[55]

Sharov's request garnered little commiseration. Established in December 1970, the official directive on the spread of the Shchekino Method – a topic discussed in chapter seven – included two protocols that empowered the ministries to potentially curtail its efficacy. First, ministries were permitted to eliminate bonus payments altogether in enterprises introducing the experiment and new technologies simultaneously. Second, in the event that labor productivity decreased, or the aggregate

[55] P. M. Sharov, "Razvedka delom," *Literaturnaia gazeta* 14 January 1970, 10.

size of personnel increased at an enterprise operating on the Shchekino Method, ministries could reduce or revoke additional payments.[56] The Shchekino Chemical Combine was not absolved from these standards. As table 6.1 demonstrates, the enterprise's material incentives fund was routinely reduced during the second stage of the method. This did not sit well with Sharov. In late 1972, he chastised the Ministry of the Chemical Industry and the State Research and Design Institute of the Nitrogen Industry and Organic Synthesis Products (GIAP) for reducing the combine's incentive fund by a total of 300,000 rubles and its staff size by 99 workers without so much as a consultation. In attempting to defend the integrity of the experiment, Sharov wrote candidly: "The plant is taking measures to fulfill the increased obligations of the second stage of the experiment to increase production and labor productivity," he argued, "but such actions…reduce interest in further carrying out this work."[57]

Sharov was right about the plant's commitment to the experiment. The implementation of new technologies occasionally led directly to the release of workers. This had always been a part of the plan. As K. A. Falaleev, the primary technologist in the oxidation shop in caprolactam production, wrote: "[o]f course we will continue to try [to dismiss workers]." Mechanization in Falaleev's shop led to the termination of one operator by 1972.[58] Once installed, the new automated gas analyzers eliminated eight

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[56] "Usloviia provedeniia meropriiatii po usileniiu zainteresovannosti rabotnikov v uvelichenii vypuska produktsii, povyshenii proizvoditelnosti truda i umen'shenii chislennosti zaniatogo personala (po primeru Shchekinskogo khimicheskogo kombinata)," *Biulleten'* 3 (1971), 3-7.
[57] GATO f. R – 3469, op. 2, d. 995, ll. 88-89 "From Sharov to Cherednichenko and Petrishchev" (4 October 1972).
[58] "Poisk prodolzhaetsia," *Znamia kommunizma* 14 September 1972, 2.

positions.[59] In formalin production, the introduction of various new machines led to the

Table 6.1 Performance of the Material Incentives Fund at the Shchekino Chemical Combine, 1970-1974

Organization	Material Incentives Fund			Profit			Bonuses Accrued		
1971									
	Plan*	**Actual***	**Ratio^**	**Plan***	**Actual***	**Ratio^**	**Plan***	**Actual***	**Ratio^**
Shchekino	2,496	2,457	98.4	1,261	1,269	101	1,034	945	91
Soiuzazot	48,308	47,188	98.2	20,419	20,333	99.6	19,693	19,107	97
Industry Mean	1,921	1,887.50	98.2	785.3	782	99.6	787.7	764.3	97
1972									
Shchekino	2,142	2,124	99.2	1,087	1,186	109.1	1,055	938	88.9
Soiuzazot	47,437	45,722	96.4	24,184	24,955	100.6	22,263	20,767	91.8
Industry Mean	1,824.50	1,758.50	96.4	954	959.8	100.6	870.1	798.7	91.8
1973									
Shchekino	2,353	2,243	95.3	1,266	1,305	103.1	1,087	938	86.3
Soiuzazot	47,744	47,568	99.6	23,908	25,584	107	23,836	21,984	92.2
Industry Mean	1,909.80	1,902.70	99.6	956	1,023.40	107	953.4	879.4	92.2
1974									
Shchekino	2,806	2,356	112.9	1,130	1,400	123.9	956	956	100
Soiuzazot	46,851	46,948	100.8	23,032	24,999	108.5	23,549	21,949	93.2
Industry Mean	1,863	1,877.90	100.8	922	999.96	108.5	941.96	877.96	93.2

*denotes in thousands of rubles;
^denotes in percentage of plan fulfilled;
Source: RGAE f. 459, op. 1, d. 7489, ll. 25; RGAE f. 459, op. 1, d. 8988, l. 23; RGAE f. 459, op. 1, d. 10564, l. 23 (ob.); RGAE f. 459, op. 1, d. 12186, l. 25.

termination of twenty-five workers.[60] The number of workers in the ion-exchange membrane shop – the only shop of its kind in the Soviet Union – decreased from 120 to sixty during the second stage of the Shchekino Method. Ion-exchange membranes are semi-permeable membranes that remove ionic contaminates – such as magnesium – from solutions; they are commonly used in water treatment processes. This capability was especially important at the Shchekino Chemical Combine, where workers routinely had to deal with a contaminated water supply. A. Subbotin, the head of the department, aimed to further streamline production through combining job duties. As a part of their mechanization strategy, Subbotin and his crew installed a fluidized bed dryer. This

[59] GATO f. R – 3469, op. 2, d. 777, l. 200 "Yearly Report of Enterprise p/ia V-8919 on Basic Activities in 1970" (undated).
[60] "Samoe vazhnoe, samoe glavnoe – dal'neishii proizvoditel'nosti truda," *Khimik* 29 March 1972, 1.

equipment involves forming the membrane by mixing monomers in liquid as the monomers polymerize inside of a chamber. Hot air dries the membranes before they are discharged. The potential of the fluidized bed dryer was especially promising because, Subbutin theorized, workers could easily perform other duties while monitoring its activity.[61]

But in some ways enterprise leadership was also complicating matters. In July 1971, Sharov complained that overzealous managers were handing out far too many bonuses without proper justification. The result was that some workers received additional, undeserved payments while others saw their bonuses artificially reduced. In both cases, the intended effect of materialincentives was negated. The problem, Sharov determined, was structural. Standards for awarding bonuses had not been updated to reflect changes in work at the combine. The Director charged the enterprise's chief economist, Vera Slepykh, with revising the procedure in accordance with improvements at the enterprise.[62]

Developed in conjunction with Iu. K. Shatokhin, the head of the NOT department, Slepykh's new guidelines issued some important clarifications. Reiterating the decision made in late 1970, Slepykh and Shatokhin declared that bonus payments for labor productivity would be cancelled if shop personnel grew. The size of bonuses, moreover, was thereafter to depend on the economic effect of the measure to which they were connected. Thus, even before the December 1970 standards took effect, shop leaders at

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[61] A. Subbotin, "Plany osushchestvimy," *Znamia kommunizma* 10 November 1972, 2; I. G. Shilin, *Effektivnost' proizvodstva i material'noe stimulirovanie (Ob eksperimente na Shchekinskom khimicheskom kombinate)* (Moscow: Ekonomika, 1969), 28.
[62] GATO f. R – 3469, op. 2, d. 856, ll. 253-255 "Order #359" (30 July 1971).

the Shchekino Chemical Combine were given the right to deny workers bonuses in the event that technological improvement had reduced work volume or improved the conditions of labor. Slepykh and Shatokhin also sanctioned rescinding workers' premiums – for anything from poor attitude to careless work – to instill better labor discipline.[63]

In fact, shop leaders at the Shchekino Chemical Combine had been trying to use bonuses as a disciplining mechanism well before Slepykh's and Shatokhin's statement. In January 1971, a brigade of fitters was temporarily denied the opportunity to earn bonuses after it failed to release condensate from an evaporator in the urea shop before beginning repairs. The hot liquid was released unexpectedly, and one unfortunate worker experienced significant burns on his thighs and hands.[64] In September, four electricians received a similar punishment after one of them suffered second- and third-degree burns from an electric shock while assembling water pumps.[65] Altogether, forty-one workers were deprived of bonuses for safety violations in 1971.[66] This practice continued throughout the method's second stage – in 1974, thirty-four workers were denied bonuses for safety infractions – despite the protests of the head of the department of labor safety, who remarked that it was more important to study why an injury occurred than to "punish victims."[67]

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[63] GATO f. R – 3469, op. 2, d. 856, ll. 256-264 "Appendix #1" (30 November 1971).
[64] GATO f. R – 3469, op. 2, d. 853, ll. 307-309 "Order #100" (24 January 1971).
[65] GATO f. R – 3469, op. 2, d. 858, ll. 109-111 "Order #513" (20 September 1971).
[66] GATO f. R – 3469, op. 2, d. 883, l. 238 "Annual Report of the Enterprise on its Main Activities and an Explanatory Note for 1971" (10 January 1972).
[67] GATO f. R – 3469, op. 3, d. 14, sv. 5, l. 6 "Minutes of the Industrial Trade Union Conference of the Shchekino Order of Lenin Chemical Combine (16 August 1971); GATO f. R – 3469, op. 2, d. 1189, l. 239.

The new standards appear to have worked. Table 6.1 shows that the Shchekino Chemical Combine spent its material incentives fund responsibly during the second stage of the experiment. Furthermore, the proportion of enterprise staff that received bonuses between 1972 and 1975 increased only minimally, from fifty-nine to sixty-two percent.[68] The same table, however, also demonstrates that in 1973 the Shchekino Chemical Combine met the plan for profits by a mark of 103 percent. Yet during the same year the enterprise experienced a precipitous drop in the total number of rubles held in the material incentives fund and rubles paid out in bonuses. This was partially the result of meddling from the center. In 1973, Goskomtrud eliminated the protocol, included in the experiment's original form, which allowed the enterprise to transfer wage savings to the material incentive fund at the end of the year; under the new arrangement, these economized funds were to be returned to the state budget. Due to this change, the workers at the Shchekino Chemical Combine lost almost 4,000,000 rubles in bonus wages.[69] Crucially, adjustments in labor organization remained untouched. Essentially, this means that from 1973 workers who had taken on extra jobs or expanded their service areas during the first stage of the experiment no longer enjoyed the benefit of additional compensation. These supplementary duties, in one scholar's estimation, thus became

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"Violations" could be interpreted broadly and even included drunkenness. Informed that he had lost a 196-ruble bonus for a short stay in a sobriety center, one RMZ worker remarked frankly "[I] traded it for the bottle." See "Chto zarabotali, to i poluchili," *Khimik* 20 February 1974, 2.

[68] GATO f. R – 3469, op. 2, d. 997, l. 247; GATO f. R – 3469, op. 2, d. 1100, l. 212; GATO f. R – 3469, op. 2, d. 1189, l. 208.; GATO f. R – 3469, op. 2, d. 1285, l. 184.

Even so, the combine did not take advantage of every available opportunity to hand out premiums. I. Fomin, the senior engineer in the NOT department, noted that in the context of the Shchekino Experiment, which focused on factory- and department- wide bonuses, the combine rarely awarded premiums to individual workers who had "particularly distinguished themselves." See I. Fomin, "Stimuly i otdacha," *Khimik* 13 March 1974, 2.

[69] V. Parfenov and V. Shvetsov, "Desiat' let spustia," *Pravda* 29 March 1977, 2.

"integral part[s] of their job."[70]

Constant tinkering with procedure – whether by the ministry, GIAP, or enterprise management – had adverse effects on workers. In 1972, leadership approved a short-term regulation that linked premiums to average monthly salary, exclusive of payments for approved leave, one-time financial assistance, and disability imbursements. The purpose was to pay bonuses according to, in the words of one *Khimik* editorial, "the time actually worked in a given year." None of this was effectively communicated to the enterprise's workers. The people's control committees, bodies of volunteers who monitored enterprise administration, received numerous letters demanding an explanation for what workers perceived to be unpaid wages.[71] A similar series of events occurred in the methanol conversion shop. Writing in September 1972, a group of operators asked why only repair workers and managers had received bonuses since April. A. V. Grigoriev, the head of the department of labor and wages at the combine, replied that bonuses would only be paid if internal shops and department could reduce the consumption of materials such as natural gas or electricity.[72] Overwhelmed by paperwork, other department managers sometimes neglected to ensure the delivery of bonuses to their workers or notify collectives that premiums were forthcoming.[73] Some installers, for example, did not receive the

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[70] Henry Norr, "Shchekino: Another Look," *Soviet Studies* 38, 2 (April 1986): 141-169. Here, 148.
[71] "O poriadke premirovaniia," *Khimik* 7 March 1973, 2. On People's Control Committees see Jan S. Adams, *Citizen Inspectors in the Soviet Union: The People's Control Committee* (New York: Praeger, 1977).
[72] "O vyplate premii," *Khimik* 6 September 1972, 2.
[73] "Resheniia XXIV s"ezda – v zhizn'!," *Khimik* 22 April 1971, 2; P. Chinkov, "Premii ne po naznacheniiu," *Khimik* 4 July 1973, 2.

bonuses owed to them for a period of almost five years.[74]

Sharov, Slepykh, Shatokhin and Sveshnikov were not the only ones deeply concerned about the status of material incentives in industry. By the end of the ninth FYP, degradation of bonus payments had become endemic. In March 1974 M. Sveshnikov, the Chairman of the State Bank of the USSR, reprimanded the Chairman of Goskomtrud, A. P. Volkov, for failing to curb "excessive" spending on bonuses. According to Sveshnikov, in the Russian Republic alone, bonuses as a proportion of workers' salaries had increased by more than twenty percent between 1970 and 1973. Worse still, many enterprises had ceased distributing supplemental payments intermittently and instead turned to paying one-time bonuses at the end of the year. Sveshnikov was adamant in his disapproval, writing:

> Such changes in the structure of expenditure of the material incentive fund in the direction of increasing payments at the end of the year weaken its stimulating role, do not contribute to increasing the interest of each employee in the successful completion of current production tasks, increasing productivity, and, in essence, mean turning remuneration for the results of work for the year into sources of superannuation.

These year-end payments – the primary beneficiaries, Sveshnikov charged, were managers and employees (*sluzhashchii*) – could be quite lucrative. In 1973 one enterprise in Moscow gave thirty-eight members of its staff 450-ruble bonuses as a reward for completing "critical production jobs." This occurred despite the fact that the factory had failed to fulfill the plan for 1973 and had not bothered to figure spoilage and production

[74] M. Milichnikov, N. Makarov, Ia. Mogil'ner, V. Pristromov, et. al., "Rekonstruktsiia – zabota obshchaia," *Khimik* 18 July 1973, 2.

defects in its decision making. In the end, the enterprise exceeded its budget for material incentives by over 40,000 rubles.[75]

This was followed by a lengthy, multi-party discussion about how to improve the Kosygin Reform, but above all the usage of the enterprise funds. In November 1974, the Interdepartmental Commission under the State Planning Commission (Gosplan) on the Transfer of Industrial Enterprises to the New System of Planning and Economic Incentives (MVK) issued a report on the status of the incentives funds. Defending the Kosygin Reform against critics who suggested abolishing the funds, MVK argued that "we are only now on the path to their fullest utilization." MVK agreed that there were problems with the initial standards of the reform; but rather than tossing it out entirely, MVK suggested some fine tuning. The material incentives fund, the report argued, should be expanded to include those rubles typically designated to serve as separate bonuses for conserving materials such as fuel. But it should exclude funds derived only from profits earned through the improved performance of the collective; profit earned through the introduction of new machinery, MVK posited, should not serve as a fund-forming indicator. MVK called this process "cleaning up" (*ochistka*) profits. While focusing on profit, MVK warned against single-minded focus on this metric. "The use of profit as a criterion of efficiency," it wrote, "is possible only in connection with other indicators that ensure the subordination of the activities of production to the public interest." In some cases, MVK explained, the development of new equipment or the expansion of

[75] GARF f. 9553, op. 1, d. 3125, ll. 42-44 "On Some Issues of Strengthening Control over the Expenditure of the Incentive Funds" (14 March 1974).

production capacities might better serve the society than would profit.[76] For his part Evgenii Kapustin, the director of the Academy of Sciences' Institute of Economics, proposed expanding the number of fund-forming indicators to account for the fact that industries pursued different economic goals. Doing so, he argued, would make the connection between industry-specific labor conditions and material incentives more apparent for workers.[77] Frustrated by various enterprise directors' decisions to spend rubles from their socio-cultural funds irresponsibly, V. I. Prokhorov, the deputy chairman of the All-Union Central Council of Trade Unions, suggested additional regulation over enterprise funds. To account for the wide discrepancy in urban conditions in the Soviet Union – a topic that, it must be said, was the inspiration for dozens of sociological studies – Prokhorov requested that some factories be allowed to increase the total size of the socio-cultural fund.[78]

We have already seen how, during the first stage of the Shchekino Method, the socio-cultural fund was used to finance the construction of a hospital, a kindergarten, and campsite along the Upa River. During the early 1970s, the fund also supported efforts to improve workers' caloric intake. After struggling with intermittent famine for decades,

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[76] RGAE f. 4372, op. 66, d. 6489, ll. 19-21, 24-25, 29, 32-33, 38-39 "Proposals for the Development of Standards for the Formation of Incentive Funds in Industries for the Tenth Five-Year Plan" (15 November 1974).

[77] ARAN f. 1877, op. 11, d. 277, ll. 6-31 "Cost-Accounting Methods of Increasing Production Efficiency" (11-13 June 1975).

[78] GARF f. 5451 (Collection of the All-Union Central Council of Trade Unions), op. 68, d. 539, ll. 259-263 "On Some Measures to Increase the Efficiency of Using the Fund for Social-Cultural Events and Housing Construction" (10 June 1976).

The urban milieu was a focal point of the work of the prominent Soviet social scientist O. I. Shkaratan. See, for example, O. I. Shkaratan, *Problemy sotsial'noi struktury rabochego klassa SSSR* (Moscow: Mysl', 1970) and M. V. Borshevskii, S. V. Uspenskii, and O. I. Shkaratan, *Gorod: Metodologicheskie problem kompleksnogo sotsial'nogo i ekonomicheskogo planirovaniia* (Moscow: Nauka, 1975).

by the late twentieth century Soviet diets at last stabilized.[79] By the 1970s, Soviet citizens consumed around 3,400 calories per day, an average that compared favorably with Western European eating habits.[80] Like their (US) American counterparts, Soviet social scientists associated diets high in consumption of animal products with higher standards of living.[81] Although by 1979 Soviet citizens ate, on average, only about half as much meat as (US) Americans, by this metric, table 6.2 shows, the Soviet diet was nevertheless improving.[82]

The connection between health, food, and work had a direct effect on the factory's operations. By the early 1970s, there were five canteens (*stolovaia*) with 1,110 seats and thirteen snack bars (*bufet*) with 508 seats at the Shchekino Chemical Combine.

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[79] On the history of Soviet agriculture see Aaron Hale-Dorrell, *Corn Crusade: Khrushchev's Farming Revolution in the Post-Stalin Soviet Union* (New York: Oxford University Press, 2019).

Appropriately, there is now a growing body of literature that focuses on Soviet cuisine. See Adrianne Jacobs, "The Many Flavors of Socialism: Modernity and Tradition in Late Soviet Food Culture, 1965-1985" (PhD Dissertation: University of North Carolina-Chapel Hill, 2015); Diane P. Koenker, "The Taste of Others: Soviet Adventures in Cosmopolitan Cuisines," *Kritika* 19, 2 (Spring 2018): 243-272; Stephen V. Bittner, *Whites and Reds: A History of Wine in the Lands of Tsar and Commissar* (New York: Oxford University Press, 2021).

[80] Robert C. Allen, *Farm to Factory: A Reinterpretation of the Soviet Industrial Revolution* (Princeton: Princeton University Press, 2003), 136.

[81] Viktor Perevedentsev, "Nash ratsion," *Zhurnalis*t 11, 15 (Nov. 1975): 79-80.

[82] When combined with new forms of work, these changes in diet had some unpleasant consequences. S. Dudkin, the chief doctor of the Shchekino Chemical Combine's sanatorium-preventorium, wrote that contemporary working-age Soviet citizens contracted angina thirteen years earlier than their parents' generation and twenty-five years earlier than their grandparents' generation. Dudkin explained the change unequivocally. "[T]he rapid growth of diseases of the cardiovascular system," he wrote, "has occurred in the last sixty years, when the nature of work began to change in developed countries." As labor had become less physically demanding, the worker's heart was put under added stress. "For every five people who get sick from idleness," Dudkin continued, "there is [only] one who gets sick from physical overload." Besides cardiovascular problems, inactivity could also pave the way for hypertension. Stressing the importance of nutrition, Dudkin advised that patients with cardiovascular disease eat several small meals a day and avoid consuming refined products and foods high in salt. See S. Dudkin, "Tsivilizatsiiia i serdtse," *Khimik* 12 April 1972, 2.

R. Vakovskaia, the head of the polyclinic, added that excess fat intake coupled with a sedentary lifestyle had led to a "dramatic" increase in obesity. In turn, the Soviet Union was faced with increased cases of atherosclerosis. Like Dudkin, Vakovskaia argued that a lack of physical labor played an important role in a person's health profile and dietary needs. Vakovskaia thus recommended mental workers limit their consumption of fats. See R. Vakovskaia, "Zdorov'e i pitanie," *Khimik* 17 May 1972, 2.

That was not quite enough for peak hours, when up to 3,900 workers were on shift. To account for inevitable overcrowding, at least one canteen was open twenty-four hours per day. Almost two-thirds of the enterprise's cooks had received special education in food preparation. The combine was accountable for all costs related to catering including refrigeration and associated equipment.[83] Beginning in 1971, the enterprise provided no-cost meals for workers who made eighty rubles per month or less. Workers on the

Table 6.2
Food Consumption Patterns (kilo per person per year)

Foods	Soviet Union (1965)	Soviet Union (1979)	United States (1979)
Meat, Meat Products, Animal Fats	41	58	120.4
Fish and Fish Products	12.6	16.3	6.1
Milk and Milk Products	251	319	151.2
Eggs (units)	124	235	283
Sugar	34.2	42.8	41.4
Vegetable Oil	7	8.4	12.2
Potatoes	142	115	66.6
Vegetables	72	98	89.2
Fruits and Berries	28	38	62.2
Bread, Macaroni, Flour	165	139	89.9

Source: Mervyn Matthews, *Poverty in the Soviet Union: The Life-Styles of the Underprivileged in Recent Years* (Cambridge: Cambridge University Press, 1986), 56.

graveyard shift also received a free meal – consisting of two open-faced sandwiches (*buterbrod*) and a coffee or a tea – per shift. Understood as part of a strategy to improve labor performance and work satisfaction, these services cost the enterprise 126,000 rubles

[83] GATO f. R – 3469, op. 3, d. 19, sv. 6, l. 85. "Meetings of the Committee of the Shchekino Order of Lenin Chemical Plan named after the 50th Anniversary of the USSR" (30 March 1973).

Table 6.3
The Socio-Cultural Fund at the Shchekino Chemical Combine, 1971-1974

Socio-Cultural Fund			
1971			
	Plan	**Actual**	**Ratio**
Shchekino	450	465	103.3
Soiuzazot	9,376	9,329	99.5
Industry Mean	375	373.16	99.5
1972			
Shchekino	334	364	109
Soiuzazot	7,601	7,625	100.3
Industry Mean	292.3	293.3	100.3
1973			
Shchekino	367	379	103.3
Soiuzazot	7,391	7,961	107.7
Industry Mean	295.6	318.4	107.7
1974			
Shchekino	233	376	128.3
Soiuzazot	6,323	6,924	109.6
Industry Mean	252.9	276.9	109.6

Source: RGAE f. 459, op. 1, d. 7489, l. 25 (ob.); RGAE f. 459, op. 1, d. 8988, l. 23; RGAE f. 459, op. 1, d. 10564, l. 23 (ob.); RGAE f. 459, op. 1, d. 12186, l. 25.

from the sociocultural fund.[84] A 1961 State Committee on Labor and Wages (Goskomtrud) decree granted additional, complimentary rations to workers in exceptionally dangerous professions. These professions were divided into five "therapeutic and prophylactic nutrition" dietary regimens specially designed to ensure the nourishment of those exposed to certain combinations of chemicals or gases.[85] No worker at the Shchekino Chemical Combine was protected under the initial verdict. But an

[84] GATO f. R – 3469, op. 2, d. 873, l. 9 "From Deputy Director of the Combine V. Bizikin to Deputy Head of Soiuzazot of the Ministry of the Chemical Industry G. S. Kozlov" (11 November 1971).
[85] Veronika Trikhina, "Integrirovannyi metod razrabotki spetsializirovannykh produktov dlia korrektsii pitaniia rabotaiushchikh vo vrednykh usloviiakh truda" (PhD [*kandidat*] Dissertation: Kemerovo Technological Institute of the Food Industry, 2018), 15; GATO f. R – 3469, op. 2, d. 883, l. 225.
This sort of compensation was common in the socialist bloc. See Jeanettee Z. Madarász, *Working in East Germany: Normality in a Socialist Dictatorship, 1961-1979* (New York: Palgrave Macmillan, 2006), 26.

extension in 1967 promised its compressor and pump operators – of which there were at least thirty-two by 1971 – additional fats, carbohydrates, and vitamin C.[86]

Food and food rations were contested spaces that neither management nor workers were able to completely control. On more than one occasion, workers complained that they had been overcharged or served poor-quality food at the enterprise's canteens.[87] Management took these actions seriously. In some cases, cooks were denied bonuses for reducing the caloric content of meals or for general "negligence" in food preparation.[88] On the other hand, "higher authorities" put the kibosh on the efforts of G. Nefedov, the deputy director of capital construction at the combine, to provide supplemental provisions for the members of construction crews that were exposed to hazardous toxins while at the combine.[89] Finally, the head of RMZ, N. P. Eremichev, found that much sought-after turners would seek out work as fitters to claim the extra vacation time and dairy rations afforded to the latter. To make the job more attractive, Eremichev suggested subsidizing meals for would-be turners through the sociocultural fund.[90]

In some cases, even the production fund was sometimes used to improve workers'

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[86] GARF f. R – 9553, op. 1a, d. 112, ll. 127-129 "On the Resolution of the Civil Code of the Council of Ministers of the USSR on Problems of Labor and Wages and the Presidium of the VTsSPS" (1 March 1967). Vakovskaia was given the task of assisting in their preparation. See GATO f. R – 3469, op. 2, d. 747, ll. 360-363 "Order #728" (29 December 1971).
[87] GATO f. R – 3469, op. 3, d. 24, sv. 7, l. 12 "Minutes of the 25th All-Plant Union Reporting and Election Conference of the Shchekino Order of Lenin Chemical Combine Named after the 50th Anniversary of the USSR" (16 November 1974).
; GATO f. R – 3469, op. 3, d. 23a, sv. 7, l. 10 "Minutes of the 24th Trade Union Conference of the Shchekino Order of Lenin Chemical Plant on the Verification of the Collective Agreement for the First Half of 1974" (30 June 1974).
[88] GATO f. R – 3469, op. 3, d. 19, sv. 6, l. 87.
[89] G. Nefedov, "Chego trebuet praktika," *Kommunar* 8 February 1974, 2.
[90] GATO f. R – 3469, op. 3, d. 21, sv. 6, l. 3 (27 July 1973).

lives. Efforts to protect the natural environment in Shchekino represented a concrete example of a circumstance when profit took a backseat to other, more pressing considerations. As with all industrial production, chemical manufacturing can, if not properly regulated, devastate nature.[91] Shchekino was no exception. In February 1972, the executive committee of the regional soviet observed that numerous enterprises in the city had failed to comply with standards for protecting nature. Air pollution and ash exceeded permitted limits. Feces and industrial runoffs polluted rivers.[92] Drainage from fields treated with excessive pesticides and other chemicals had spoiled reservoirs.[93] Regional sanitary and epidemiological workers testified with certainty that poor environmental conditions directly contributed to the population's health issues.[94]

P. M. Sharov took an active role in trying to lessen the Shchekino Chemical Combine's role in polluting the region. In May 1971, he ordered all of the enterprise's production shops to reduce emissions, replace outdated equipment, and monitor the contents of materials released into the atmosphere.[95] The decree failed to inspire. Months later, so few shop leaders had implemented Sharov's order that Lur'e was reduced to

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[91] For a social history of the response to one infamous environmental disaster associated with chemical production in the United States see Elizabeth Blum, *Love Canal Revisited: Race, Class, and Gender in Environmental Activism* (Lawrence: University of Kansas Press, 2008).
[92] "Okhrana prirody – vazhneishaia zadacha," *Znamia kommunizma* 16 February 1972, 3.
[93] E. Spynu, "Zashchitim vodu, zemliu, produkty ot iadokhimikatov!," *Znamia kommuniza*, 20 July 1971, 3.
[94] "Zdorov'e – prezhde vsego," *Znamia kommunizma* 27 April 1972, 3.

Wanton destruction of natural spaces and waste of resources made matters worse. Both topics received ample coverage in the local press. See, among many others, O. Sashko, "Liubish' prirodu? Beregi ee," *Znamia kommunizma* 28 June 1972, 4; A. Glazatova, "Vopros voprosov," *Znamia kommunizma* 31 August 1972, 2; A. Zhabina, "Les liubit' nado," *Znamia kommunizma* 4 October 1972, 3; I. Gol'din, "Beregite les!," *Znamia kommunizma*, 20 July 1973, 3.
[95] GATO f. R – 3469, op. 2, d. 856, ll. 46-48 "Order #292" (25 May 1971)

imploring them to cooperate.[96] The The director's mandate did, however, have financial support. Between 1971 and June of 1974, the combine spent over 2,500,000 rubles applying measures to protect the environment.[97] From September 1972, it also had the implicit backing of the Soviet government. That month, the Supreme Soviet issued a decree that obliged planners, ministries, and enterprises to work to conserve natural resources and prevent spoiling the air, water, and soil.[98]

But occasionally measures to guard the condition of the natural environment actually complemented the obligation to implement new technologies to improve economic performance.[99] In 1972, the urea shop installed large, air-cooled fans for use in the production of gaseous ammonia. The ventilators replaced water condensers that used up to 250 cubic meters (approximately 66,000 gallons) of water per hour, an arrangement one writer called "not economical."[100] The following year *Banner of Communism* praised the reconstruction of two formalin production units for reducing emissions while simultaneously increasing production capacity.[101] An engineer celebrated that a new method of producing caprolactam would decrease emissions by over 400 times while

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[96] GATO f. R – 3469, op. 2, d. 867, ll. 214-216 "Order #364" (15 September 1971).
[97] "Atmosfera stala chishche," *Khimik* 5 June 1974, 1.
[98] "O merakh po dal'neishemu uluchsheniiu okhrany prirody i ratsional'nomu ispol'zovaniiu prirodnykh resursov," *Pravda* 21 September 1972, 1. Also see the preceding speech by the then vice chairman of the Council of Ministers, V. I. Kirillin. "O merakh po dal'neishemu uluchsheniiu okhrany prirody i ratsional'nomu ispol'zovaniiu prirodnykh resursov," *Pravda* 20 September 1972, 2-3.
[99] There were, of course, also innovations that were pursued strictly for economic reasons. First, by installing a larger cooling unit in its fluidized bed reactor, the urea shop cut production time by over 30 percent. The second urea shop also made important progress during the first month of the second stage of the experiment. Urea production had been limited because the shop's carbamide pumps could not handle more than 18 cubic meters per hour. To take advantage of the much larger capacity of the synthesis column, in August 1970 the enterprise was able to acquire two larger pumps from abroad. The first was at last put into operation in January 1971. See A. Sretenskii, "Effektivnaia zamena," *Khimik* 7 February 1973, 2 and V. Pristromov, "Molodtsy karbamidchiki!," *Khimik* 21 January 1971, 1.
[100] P. Viktorov, "Po programme eksperimenta," *Khimik* 23 August 1972, 1.
[101] A, Aleksandrov, "Svoimi silami," *Znamia kommunizma* 31 August 1973, 2.

reducing cost by forty-to-fifty rubles per ton.[102] Lur'e added that in 1974 the caprolactam shop introduced a new (for it) method – direct synthesis (also known as the Müller-Rochow Process) – for producing hydroxylamine sulfate. A reducing agent utilized in both organic and inorganic reactions, pure hydroxylamine is a volatile hydroscopic (water-attracting and water-retaining) crystalline compound. When hydroxylamine is reacted with sulfuric acid, hydroxylammonium sulfate is obtained. Hydroxylammonium sulfate is used in the production of plastics, rubbers, insecticides and herbicides, textiles, detergents, and other consumer goods. When heated it decomposes into, among other things, ammonia. In the caprolactam shop at the Shchekino Chemical Combine, direct synthesis involved utilizing copper to catalyze the decomposition of hydroxylamine sulfate in a fluidized bed reactor. According to Lur'e, this drastically reduced the cost of producing ammonia without cutting production capacity. Furthermore, Lur'e explained, continuing to use the "old scheme" for producing hydroxylamine sulfate – a process he did not explain – would have required the combine to double the manufacture of oleum and ammonium sulfate. Instead, it would only need to expand the latter. Harmful emissions into the atmosphere would therefore be reduced.[103]

At *Iasnaia Poliana*, however, the situation was quite different. There, political and industrial authorities took steps to protect nature without additional economic rationale.[104] This was not an abandonment of the quest for efficiency or even a shift in

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[102] G. Pavpertov, "Tempy nado uskorit'," *Znamia kommunizma* 12 January 1974, 2.
[103] B. Lur'e, "Rekonstruktsiia – put' progressa," *Kommunar* 8 February 1974, 2.
[104] For some, this was a matter of national pride. As the secretary of the museum at the estate wrote, "it is hard to imagine Russia without *Iasnaia Poliana*." See N. Ivanova, "Bez Iasnoi Poliany trudno predstavit' Rossiiu," *Znamia kommunizma* 9 September 1972, 3.

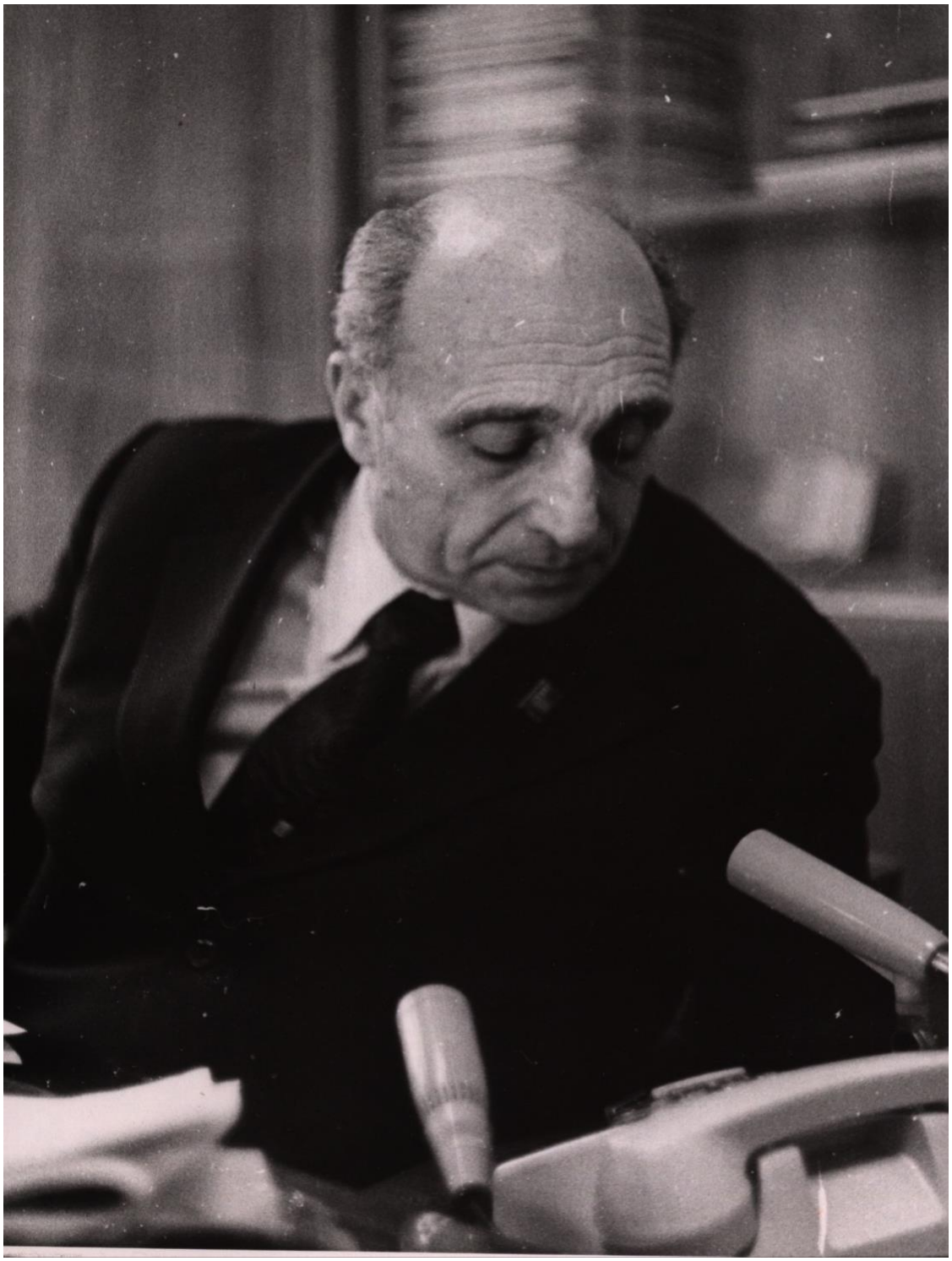

Figure 6.5
B. I. Lur'e at work (1975)
Source: GATO f. P – 3997, op. 7, t. 5, d. 1876, (no pagination)

approach. After all, Soviet politicians, intellectuals, and industrial leaders had always – even through the introduction of the Kosygin Reform – maintained that profit was only one of many useful metrics for determining the success of the Soviet economy. Between 1971 and June of 1974, the Shchekino Chemical Combine implemented several dozen measures – including installing a machine for collecting ammonia-laden gases for proper disposal – to protect the air and water at *Iasnaia Poliana*.[105] At a cost of more than 9,000,000 rubles over a seven-year period (1966-1973), these were serious investments. Yet there is no indication that the economics of the estate's preservation was much of a consideration. According to V. Susliak, the second secretary of the Tula regional party committee, these efforts were not in vain. In a letter to the Interdepartmental Commission on Environmental Protection, Susliak wrote that by December 1973 the amount of ammonia, sulfur dioxide, and nitrogen dioxide released into the atmosphere from the combine had been "significantly reduced." *Iasnaia Poliana*, however, was not entirely out of the woods. V. Susliak, the second secretary of the Tula regional party committee, bemoaned that recent changes at the nearby Pervomaisk thermal energy station, which had recently shifted from using natural gas to coal as a primary power source, risked offsetting the gains made at the Shchekino Chemical Combine.[106] Moreover, on at least one occasion related institutions had to step in to ensure the enterprise did not sabotage its own progress. Due in large part to concern for the preservation of *Iasnaia Poliana*, in

[105] "Atmosfera stala chishche," 1.
[106] GATO f. P – 177, op. 66, d. 75, k. 1314, ll. 1-2 "On Problems of Environmental Protection and the Rational Use of Natural Resources" (6 December 1973).

1973 the chief sanitary doctor of the Shchekino region "categorically reject[ed]" the Shchekino Chemical Combine's request to receive wastewater containing, among other things, organic and inorganic phosphorous compounds from Bulgaria.[107]

Altogether, tables 6.1, 6.3, and 6.4 demonstrate that the Shchekino Chemical Combine was unable to fulfill its plan to grow the material incentives funds. In 1973 and 1974, its production fund was in fact smaller than the average production fund at the enterprises of Soiuzazot, the association (*ob"edinenie*) that monitored nitrogen fertilizer producers. What explains the decline? For one thing, the second stage's emphasis on construction put new professional groups at the center of the experiment. As one writer put it, "[i]f the success of the first stage of the Shchekino Experiment was, in fact, in the hands of the plant's employees themselves, then the second stage depends on the builders and equipment suppliers."[108] This could not have been welcome news for enterprise administrators, who had struggled with the construction and transportation industries for some time. Anatolii Mokin, the secretary of the party committee at the Shchekino Chemical Combine, expressed his frustrations with both at a meeting of the Tula regional party activists some four years earlier. In 1967 the construction industry failed to fulfill its obligations to such a degree that Mokin accused it of bringing "necrosis" (*omertveniia*) to the combine. That same year, the enterprise actually had to scale back production because it lacked the necessary train cars to ship finished products.[109]

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[107] GATO f. R – 3469, op. 2, d. 1114, l. 57 "Letter from the Shchekino City Sanitary and Epidemiological Station to the Chief Engineer of the Shchekino Chemical Combine" (29 September 1973).
[108] V. Vavilov, "Na vtorom etape," *Khimik* 3 October 1973, 1.
[109] GATO f. P – 177, op. 39, d. 41, k. 664, l. 115 "Minutes of the Tula Regional Party-Economic *Aktiv*" (7 February 1967).

Indeed, the enterprise's progress was routinely slowed by the construction industry. In the 1960s, workers installed around 400 gas analyzers to monitor production. This equipment had to be calibrated in accordance with a certified gas mixture. Theoretically, this technology would spare laboratory technicians the onerous chore of taking individual quality samples from throughout the enterprise. Yet, despite persistent pleas from shop leaders, a building for generating certified gas mixtures had still not been completed some five years after it was first ordered. One *Khimik* editorial published in 1971 conveyed the enterprise's frustration:

> [Despite] [a]ll our troubles, all the memos, [and] repeated speeches at trade union conferences, requests to include a clause about the construction of the station for prepared gas mixtures in the collective agreement have been left unfulfilled.[110]

Similarly, reconstruction of the benzene hydrogenation shop, the warehouse for methanol-benzene, the caprolactam shop, and the centralized equipment repair shop all fell behind schedule. Nefedov argued that the nature of the work made difficulties inevitable. "Reconstruction," he wrote, "is a new thing, and many problems with its implementation have to be faced for the first time." For example, in the process of laying foundations, construction crews dug up 6,000 cubic meters (more than 2,000 tons) of contaminated soil. Workers could not proceed with disposal, however, because GIAP had yet to establish guidelines for doing so.[111]

These types of problems were not unique to the Shchekino Chemical Combine. In a study conducted in 1970, 79 percent of surveyed industrial managers stated that transportation services had not improved at all over the previous FYP. See R. G. Karagadev, "Glazami direktora," *Literaturnaia gazeta* 5 August 1970, 10.

[110] D. Akhmetzianov and N. Epishchev, "Zakoldovannyi krug," *Khimik* 8 April 1971, 2.

[111] P. Leskov, "S etim chto-to delat' nado…," *Znamika kommunizma* 23 September 1972, 2; G. Nefedov, "Chego trebuet praktika," *Kommunar* 8 February 1974, 2.

Table 6.4
Production Fund at the Shchekino Chemical Combine, 1971-1974

Production Fund			
1971			
	Plan	**Actual**	**Ratio**
Shchekino	3,525	3,595	102
Soiuzazot	46,756	50,312	107.6
Industry Mean	1,870.2	2,012.5	107.6
1972			
Shchekino	3,213	3,444	107.1
Soiuzazot	48,611	49,752	102.3
Industry Mean	1,869.7	1,913.5	102.3
1973			
Shchekino	2,873	2,809	97.8
Soiuzazot	57,982	57,424	99
Industry Mean	2,319.3	2,297	99
1974			
Shchekino	3,042	2,915	95.8
Soiuzazot	60,735	60,013	98.8
Industry Mean	2,429.4	2,400.5	98.8

Source: RGAE f. 459, op. 1, d. 7489, l. 26; RGAE f. 459, op. 1, d. 8988, l. 23 (ob.); RGAE f. 459, op. 1, d. 10564, l. 24; RGAE f. 459, op. 1, d. 12186, l. 25 (ob.).

The transportation industry was no more reliable. At a 1972 trade union meeting Sharov remarked, with some bewilderment, "[t]he crane is driving around the factory looking for a place to work."[112] Project organizations repeatedly failed to deliver technical documentation for construction and remodeling in a timely manner.[113] A. Mitin, a mechanic in RMZ, complained that unreliable supply chains had a ripple effect in the enterprise. Workers, he continued, were often forced to cut corners in production and repairs to fulfill pressing quotas.[114] Sharov's repeated appeals to "higher economic

[112] GATO f. R – 3469, op. 3, d. 18, sv. 6, l. 9 "Minutes of the 24th All-Plant Trade Union Reporting and Election Conference of the Shchekino Order of Lenin Chemical Combine" (1 December 1972).
[113] GATO f. R – 3469, op. 2, d. 997, l. 255.
[114] GATO f. R – 3469, op. 3, d. 24, sv. 7, l. 11.

authorities" for assistance with transportation received no response.[115] When, in 1974, he frankly admitted that the plan for reconstruction would not be met, Sharov placed the blame on supply problems.[116]

Production may have also been inhibited by chronic safety problems in the departments directly responsible for installing and servicing new technologies. Figure 6.3 shows the number of days lost due to injury in four shops (*tsekh*) at the Shchekino Chemical Combine. Clearly, RMZ was a dangerous place to work. As its namesake suggests, RMZ was responsible for repair work and designing and implementing automation processes.[117] At a trade union conference in July 1972, one representative offered a glimpse of the injuries that had occurred in RMZ since the start of the year. To avoid exposure to the fire and noxious gases produced when a hydrocarbon reacts with oxygen – a process called hydrocarbon combustion – chemical workers must purge hydrocarbon from equipment before maintenance work can begin. While working on a pipeline in May 1972, one crew failed to do so, prompting a quick-thinking worker to jump over three meters, probably from temporary scaffolding, to the ground. The

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[115] P. M. Sharov, "Delegaty konferentsii obsuzhdaiut otchetnye doklady," *Kommunar* 24 February 1974, 3.
[116] GATO f. R – 3469, op. 3, d. 24, sv. 7, l. 14.

Some equipment and supply problems were so multifaceted that it was difficult to definitively identify their source. In December 1973, the combine received its rectifier column for cyclohexane production in pieces. A crew of fewer than two-dozen workers was left to manage the assembly of a massive piece of equipment that can stand upwards of 60 feet and weigh several tons. Complaining that central authorities failed to lend any assistance, one worker asked "[h]ow much can 18 to 20 people actually do in one day?" To make matters worse another column, without which production could not begin, had not been delivered and no one knew when it would arrive. See V. Solomein and V. Pozdniakov, "Montazh nada uskorit," *Khimik* 18 December 1974, 1. Bricks and concrete were so frequently of poor quality that one crew of builders challenged producers to attend shop meetings and accept liability for their shoddy work. "Let them, too, be held responsible for the timely construction of Shchekino chemical facilities," they demanded. See A. Milichnikov, N. Redkin, V. Ul'ianova, M. Frolova, and I. Bakulin, "Pomekhi na starte," *Znamia kommunizma* 9 February 1974, 2.
[117] N. Balashov, "Vazhnye zakazy," *Khimik* 9 February 1972, 1.

worker's life was saved, but the landing broke both of his legs. Another worker failed to take proper precautions before repairing a steam line; he suffered serious burns and missed twenty days of work.[118]

Chapter two showed that in the early 1960s accidents at the Shchekino Chemical Combine were often blamed on poor facilities. But as technology improved, it became more common that management and workers shared responsibility for various calamities. For example, one worker aware of the struggles in RMZ put the onus for change on staff who neglected to follow safety precautions.[119] R. Vakovskaia, the head of the polyclinic, agreed. She complained that doctors had to "walk around workshop to workshop and persuade" workers to submit to annual medical examinations. But it is also true that those with long-term illnesses were rarely given enough time to recover before they were sent back to work. Those fortunate enough to get time off faced other difficulties. Persistent transportation problems, Vakovskaia argued, prevented sick workers from going on assigned field trips away from the city for rest and recuperation. S. Dudkin, the chief doctor of the Shchekino Chemical Combine's sanatorium-preventorium struggled with similar challenges. His facility was unable to provide patients with adequate nutrition

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[118] GATO f. R – 3469, op. 3, d. 17, sv. 6, ll. 17-19 "Report at the Trade Union Conference on the Verification of the Collective Agreement for the first half of 1972" (28 July 1972).

[119] G. Anashchenko, "Sdelaem truda bezopasnym," *Khimik* 31 March 1974, 1. RMZ was a constant source of irritation throughout the combine. V. T. Tikhomirova, the chairman of the committee of the shop of carbon dioxide and gas mixtures, remarked that RMZ "does not fulfill our orders." See GATO f. R – 3469, op. 3, d. 18, sv. 6, l. 6 "Minutes of the 24th all-plant trade Union reporting and election conference of the Shchekino Order of Lenin Chemical Combine" (1 December 1972). Referencing problems with slow construction, Sharov remarked in 1973 that RMZ "is not working very well." See GATO f. R – 3469, op. 3, d. 24, sv. 7, l. 14 "Minutes of the 25th all plant trade Union reporting and election conference of the Shchekino order of Lenin chemical Combine" (16 November 1974).

because food delivery services were unreliable.[120]

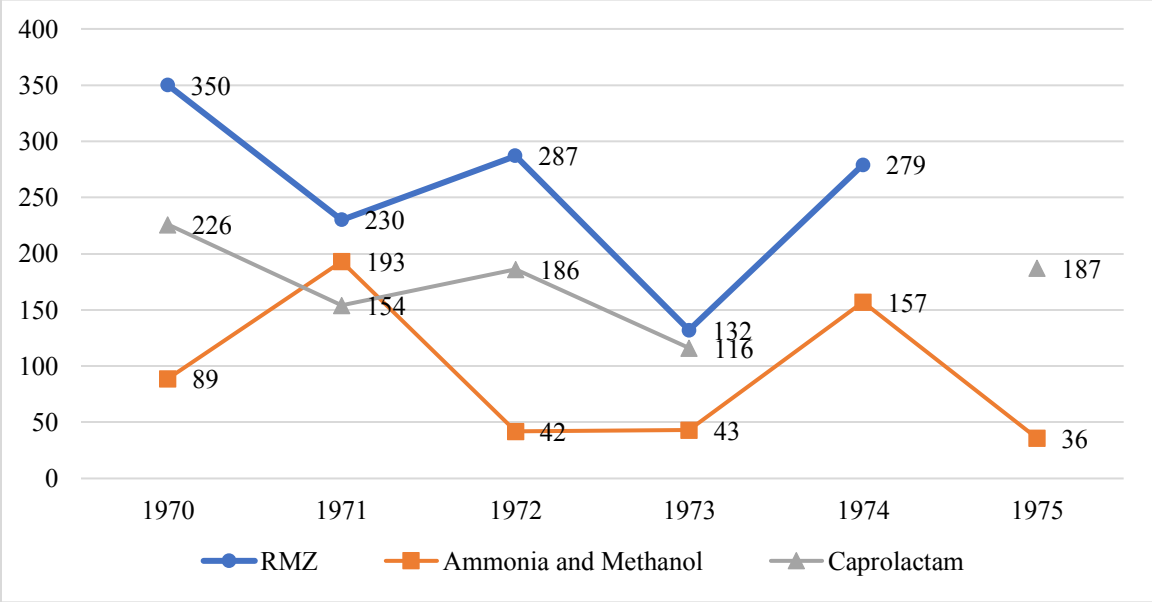

Figure 6.6
Days Lost due to Injury per 1,000 Workers in Select Shops, 1970-1975
Source: GATO f. R – 3469, op. 2, d. 883, l. 231; GATO f. R – 3469, op. 2, d. 997, l. 236; GATO f. R – 3469, op. 2, d. 1100, l. 236; GATO f. R – 3469, op. 2, d. 1189, l. 234-235; GATO f. R – 3469, op. 2, d. 1285, ll. 113-114.

Long-term illnesses were also common. Vakovskaia observed an "outbreak of cancer" between 1970 and 1973 that led to an increase in aggregate morbidity at the combine. There had also been an upsurge of gastrointestinal diseases in the KIPiA, water treatment, ammonia, and caprolactam shops over the same period.[121] For much of 1972, doctors struggled to control a wave of pustules in RMZ and the KIPiA works.[122] In 1973, fifty-one workshops participated in an internal competition for the title of "exemplary workshop for safe working conditions." By the end of the year, forty-six had been

[120] GATO f. R – 3469, op. 3, d. 14, sv. 5, ll. 6-7 "Minutes of the Industrial Trade Union Conference of the Shchekino Order of Lenin Chemical Plant" (16 August 1971).
[121] GATO f. R – 3469, op. 3, d. 21, sv. 6, l. 4 "Material of the Conference on the Verification of the Collective Agreement" (1 January 1973).
[122] GATO f. R – 3469, op. 3, d. 18, sv. 6, ll. 5-6 "Minutes of the 24th all-plant trade Union reporting and election conference of the Shchekino order of Lenin chemical plant" (1 December 1972).

disqualified for serious accidents. The mounting and special installation shop, for example, was eliminated for an episode of acute carbon monoxide poisoning.[123]

The Shchekino Chemical Combine's production struggles should not obscure the otherwise impressive performance of the Soviet chemical industry in the decade that followed the introduction of the Kosygin Reform. That the Soviet Union was ultimately

Table 6.5
Growth in Total Factor Productivity by Industry, 1965-1975 (in percentages)

Gas	30
Electricity	30
Chemicals	26
Machine Building	20
Construction Materials	15
Light Industry	12
Food	12
Coal	7
Oil	35
Ferrous Metals	14
Overall	18

Source: Allen, *Farm to* Factory, 200.

unable to close the "technology gap" with the West is well known.[124] Equally understood is the fact that the party often borrowed innovations from the capitalist world.[125] This was by no means exceptional. Knowledge and technology transfer have been crucial to the development of the modern chemical industry.[126] More to the point, given the history of chemical production in Russia – as one historian put it "Tsarist Russia really had no

[123] GATO f. R – 3469, op. 3, d. 23, sv.7, ll. 26-27 "Summary of the Results of the Annual Competition for the title "Exemplary Workshop for Safe Working Conditions"" (undated).
[124] See James P. Scanlan, ed., *Technology, Culture, and Development: The Experience of the Soviet Model* (Armonk, NY: M. E. Sharpe, 1992).
[125] See Bruce Parrott, ed., *Trade, Technology, and Soviet-American Relations* (Bloomington: Indiana University Press, 1985).
[126] See, for example, Keith Chapman, *The International Petrochemical Industry: Evolution and Location* (Cambridge, MA: Blackwell, 1991).

chemical industry" – Soviet industrial leaders had little choice but to import technology.[127] And so it did. Between the 1950s and 1980s, imports of Western technology accounted for more than one quarter of all investment in the Soviet chemical industry.[128] As chapter four noted, the Shchekino Chemical Combine bought machinery from Italy and the Netherlands. The chemical industry proved quite adept at applying technology, foreign or indigenous. Total Factor Productivity, or the ratio of total outputs to total inputs, is one metric often used by economists to measure production efficiency in a given economy or an economic sector. Compiled by Robert Allen, table 6.5 shows that the chemical industry made significant strides in improving production efficiency vis-à-vis other industries from the mid-1960s to the mid-1970s. At least for a time, then, it is clear that mechanization proved quite beneficial for some industries.

As this chapter has demonstrated, emphasis on the fundamental elements of the first stage of the Shchekino Experiment, a product of the 1965 Reform, continued well into the mid-1970s. To further illustrate the point, figure 6.4 traces the number of workers released during the early 1970s. The practices slowed, but, barring full automation, this was inevitable. The three enterprise funds, moreover, remained integral to the functioning of the Shchekino Chemical Combine for much of the ninth FYP. In short, the priorities of the 1970s did not simply supplant those of the 1960s. The Central Committee's 1969 decision to continue the Shchekino Experiment – combined with the ascending prominence of the NTR and greater attention workers' safety, nutrition, and the condition

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[127] V. S. Lel'chuk, "Stroitel'stvo khimicheskoi promyshlennosti SSSR v period pervoi piatiletki," *Voprosy istorii* 10 (Oct. 1958): 3-21. Here, 4.
[128] Philip Hanson, "Soviet Assimilation of Western Technology," in *Trade, Technology, and Soviet-American Relations*, 63-81. Here, 73.

of the natural environment – ensured that the aims and tactics of both eras would exist simultaneously for some time.

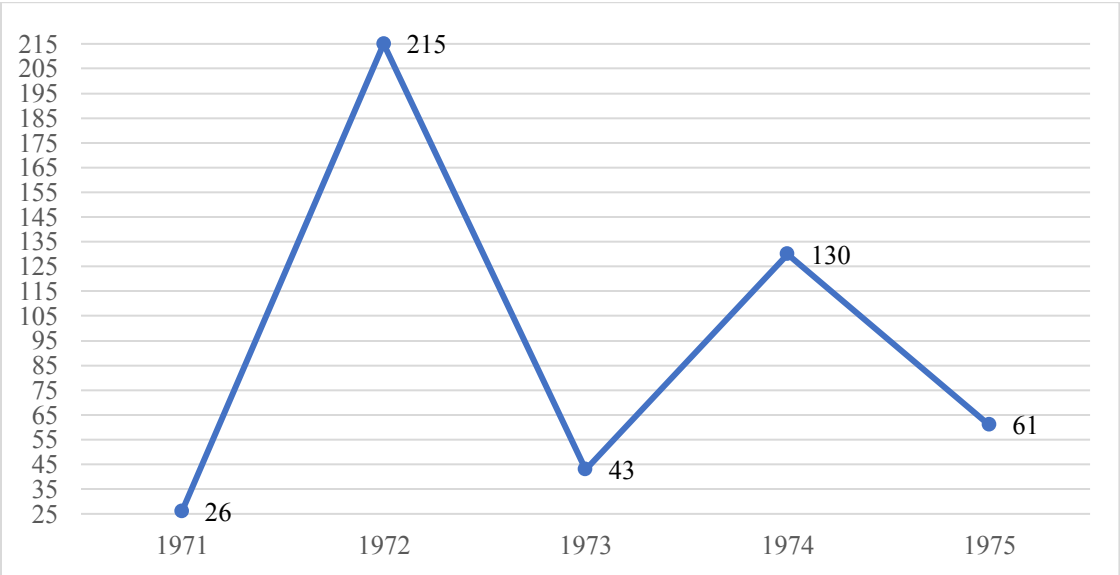

Figure 6.7
Personnel Released, 1971-1975

Source: GATO f. R – 3469, op. 2, d. 883, l. 196; GATO f. R – 3469, op. 2, d. 997, l. 248; GATO f. R – 3469, op. 2, d. 1100, l. 213; GATO f. R – 3469, op. 2, d. 1189, l. 208; GATO f. R – 3469, op. 2, d. 1285, l. 185.

*1,039 workers were released from the Shchekino Chemical Combine during the first stage of experiment. Figure 6.7 extends this total into the first six months of 1975 for a total of 1,514.

The evolution of labor organization, meanwhile, continued. One of the initial goals of implementing new technologies during the second stage of the Shchekino Experiment was to reduce the proportion of manual labor performed at the enterprise. The record on this topic is mixed. In May 1973, Sharov noted that attempts to automate production had failed to have a significant influence on the ratio of manual laborers in either primary (thirty-two percent) or auxiliary (thirty-two percent) production. He ordered the department of NOT to investigate and develop solutions.[129] But the structure

[129] GATO f. R – 3469, op. 2, d. 1158, l. 12 "Order #263" (16 May 1973).

of labor in some facilities had changed drastically. For example, between 1971 and 1973, the percentage of mechanized labor in urea production increased from 43.7 percent to 71.4 percent in primary production and from 33.4 percent to forty-five percent in auxiliary production.[130] These figures compared favorably with the chemical industry overall, where, by 1975, the ratio of automated labor was only around 47.7 percent.[131]

In 1976, one year after the end of the second stage of the Shchekino Method came to an end, P. M. Sharov retired. He was awarded the prestigious title of Hero of Socialist Labor for his work in industrial management.[132] Sharov never stopped touting the accomplishments of the Shchekino Experiment. In a 1976 article published in *Ekonomicheskaia gazeta*, he wrote that "time has confirmed the correctness of the path taken by the Shchekino workers." But Sharov did not shy away from acknowledging its shortcomings and identifying their source; for him, the problem with the Shchekino Experiment was Gosplan's decision to reintroduce the ratchet principle. Commenting on the enterprise's inability to meet the plan for wage growth during the second stage of the experiment, Sharov wrote, "[t]his happened because, starting in 1972, we were assigned higher production targets than the five-year plan, but the size of the financial incentive fund remained the same."[133] Sharov had little reason to worry. By then, the legacy of the Shchekino Experiment was shaped by events outside the gates of the Shcehkino Order of

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[130] GATO f. R – 3469, op. 3, d. 21, sv. 6 l. 6 "Materials of the Conference on the Verification of the Collective Agreement for January 1973" (27 July 1973).
[131] RGAE f. 459, op. 4, d. 1776a, l. 13 "Labor in the Chemical Industry, 1960-1975: Statistical Collection" (1977)." This document published under the title *Trud v khimicheskoi promyshlennosti za 1960-1975gg* (Mocow: NIITEKhIM, 1977). Marked "for administrative use," it has proven remarkably difficult to locate in libraries in the United States and the Russian Federation.
[132] "Ukaz Prezidiuma Verkhovnogo Soveta SSSR," *Pravda* 13 Jan. 1974, 1.
[133] P. Sharov, "Shchekinskii opyt: Dal'neishii etap," *Ekonomicheskaia gazeta* 13 (1976), 6.

Lenin Combine as much as it was within them.

This chapter opened with a discussion of the effects of the Central Committee's 1969 decree on the Shchekino Experiment on the functioning of the Shchekino Chemical Combine. It has shown that the initial success of the experiment prompted industrial leaders to extend it into the mid-1970s. But the real purpose of the 1969 decree was to promote the Shchekino Experiment's spread throughout the Soviet Union. Was the method adopted at other enterprises? How and for what reasons? What sort of challenges did factories in various industries face in attempting to implement the Shchekino Method? Was flexible production with socialist characteristics a national phenomenon or merely a provincial curiosity? These are the questions that animate the next chapter.

7: From "Experiment" to "Method": The Dispersal of the Shchekino Method throughout Soviet Industry

If chapters five and six are successful in their attempt to elucidate "flexible production with socialist characteristics" then by focusing entirely on one enterprise in one medium-sized Soviet city, they nonetheless leave in question the degree to which this set of relations affected the Soviet Union more broadly. This chapter shows that, while evolving from a small-scale "experimental" phenomenon into a complete "method" of socioeconomic practice, the Shchekino Experiment also spread throughout the Soviet economy. During the Cold War, scholars interested in this development focused first and foremost on the Shchekino Method's potential to solve socioeconomic problems. They tended to stress its failure to do so.[1] Since then, the topic has attracted little attention.

By contrast, this chapter is interested in the Shchekino Method's continued influence on the Soviet economy. It focuses on the period between the Shchekino Method's commencement in 1967 and the 1978 decree that made its generalization official. The spread of the Shchekino Method was slow and uneven. Until 1971, no guidelines existed to manage the process of applying the experiment. As a result, enterprises took liberties to adapt it to suit their own particular needs, typically determined by the material conditions within their respective industry. Soon, it was impossible to speak of a single Shchekino Experiment. Scholars typically argue that by the mid-1970s an increasingly conservative Communist Party crushed what remained of

[1] Henry Norr, "Shchekino: Another Look," *Soviet Studies* 38, 2 (April 1986): 141-169; Bob Arnot, *Controlling Soviet Labour: Experimental Change from Brezhnev to Gorbachev* (London: Macmillan, 1988).

the Kosygin Reform. This vision, the chapter demonstrates, is far too simplistic. Along with other policies, the ambitions of the ongoing wage reform, for example, actually granted enterprises the right to adopt elements of the Shchekino Method even as industrial leaders struggled to implement the full schema nationwide. Furthermore, by the mid-1970s, the method had even spread into Eastern Europe. The result is that the Shchekino Method, and with it the Kosygin Reform, was firmly, even if not comprehensively, embedded in strategies of economic management throughout socialist Europe. But by the latter part of the decade, planners began once again prioritizing growth. The priorities of the Shchekino Method – that is, rationalization and efficiency – seemed to be on the way out. Yet its influence continued to expand such that, by 1978 a new resolution effectively permitted its universal spread.

The Shchekino Chemical Combine was not the only enterprise to adopt the Shchekino Experiment for long. In February 1968, S. Tikhomirov, the deputy minister of the Ministry of the Chemical Industry, and A. P. Volkov, the chairman of the State Committee on Labor and Social Problems (Goskomtrud), wrote to Alexei Kosygin about the status of the experiment. Satisfied with the early results, they recommended that individual ministries be permitted to adopt the Shchekino Experiment. Tikhomirov and Volkov were especially interested in extending it to "several chemical enterprises" in regions with a "shortage of labor."[2] Kosygin agreed. In mid-March, he directed Goskomtrud, the State Planning Committee (Gosplan), and the Ministry of Finance

[2] *Gosudarstvennyi arkhiv Rossiisskoi Federatsii* (GARF) fond (f.) 5446 (Collection of the Council of Ministers), opis' (op.) 102, delo (d.) 195, listy (ll.) 88-92 "S. Tikhomirov and A. Volkov to the Council of Ministers" (22 February 1968).

together to extend the experiment to "four or five enterprises of different industries" in major cities.[3]

At least initially, factories adopted the Shchekino Experiment essentially unchanged. The Novomoskovsk Chemical Combine was the second factory to adopt the schema. Located just seventy kilometers from Shchekino in the Tula region, the Novomoskovsk Chemical Combine was the largest producer of chemicals in the Soviet Union. It too specialized in the manufacture of fertilizers. As of January 1975, the combine's fixed assets were valued around 600,000,000 rubles and it employed more than 15,000 workers. Like at the Shchekino Chemical Combine, the Shchekino Experiment at the Novomoskovsk Chemical Combine was divided into two stages. According to A. A. Zuev, the chief engineer at the combine, during the first stage of the experiment – 1968 to 1972 – 1,909 workers and 393 engineering-technical workers (ITR) and white-collar employees (*sluzhashchii*) were released primarily through the combination of professions and the expansion of service areas – both accomplished through various scientific organization of labor (NOT) initiatives – and the implementation of new production technologies. In total, 1,628 workers took on a second profession during the same period. Many released workers were able to find employment in one of several new shops commissioned as the experiment progressed. Altogether, gross output increased by 41.5 percent. By January 1972, 5,517 workers had received bonuses totaling 60,484 rubles per month. During the second stage, which began in 1972

[3] *Gosudarstvennyi arkhiv Tul'skoi oblasti* (GATO) fond (f.) 3469 (Collection of the Shchekino Association [*ob"edinenie*] "Azot"), opis' (op.) 2, delo (d.) 534a, listy (ll.) 2-3 "Statement from the Minutes of the Meeting of the Presidium of the Council of Ministers of the USSR" (13 March 1968).

and continued for a period of three years, the enterprise focused on mechanization and applying new technologies. In the process, another 135 workers were released. Table 7.1 shows that, by the conclusion of the second stage, the enterprise had grown gross output by 44.8 percent and labor productivity by 40.4 percent of the levels achieved in 1971. As a part of the second stage's emphasis on advanced technologies, 4,012 workers received additional technical training in one of forty-four on-site classrooms complete with visual and technical aids.[4]

Table 7.1
Summary of the Shchekino Experiment at the Novomoskovsk Chemical Combine

Stage	Gross Production	Growth of Production Personnel	Labor Productivity	Share of Increase in Output Due to Growth in Labor Productivity
I: 1968-1972*	41.5	3.9	36.2	90.6
II: 1972-1975**	44.8	3.1	40.4	93.1

Source: A. A. Zuev, "Na baze noveishei tekhniki," in *Eksperiment - opyt - rezul'tat*, eds. V. P. Iudaev, et. al. (Tula: Prioksk. kn. izdatel'stvo, 1975), 73-93. Here, 77l
*the document is not clear about the base year used to calculate the totals for the results of the first stage, though one might presume 1967
**figures in percentage over 1971 figure.

But industrial authorities were under no illusion that the Shchekino Experiment could be spread throughout the Soviet Union without modification. L. A. Kostandov, the minister of the chemical industry, was encouraged by the initial performance of the Shchekino Experiment, but conceded, "the Shchekino Method does not answer all of our problems."[5] A. A. Dimitrievskii, the secretary of the central committee of the trade union

[4] Zuev, "Na baze noveishei tekhniki," 73-74, 76-77, 86-87, 93. Also see "Opyt Shchekintsev v Novomoskovske," *Kommunar* 25 March 1971, 2
[5] GATO f. P – 177 (Collection of the Communist Party of the Tula Region), op. 55, d, 99, ll. 48-50 "Transcript of the All-Union Seminar of Party and Economic Leaders on the Study of the Experience of the

of the workers of the metallurgical industry, agreed. The Shchekino Experiment's "value in attracting workers to the management of production, in finding reserves for the growth of labor productivity is beyond doubt," he commented. Nevertheless, Dimitrievskii predicted that the experiment "will change somewhat both in the forms of material incentives and in organizational terms."[6] Both remarks were accurate. Indeed, the late 1960s is best understood as a period of adjustment and innovation for those applying the Shchekino Experiment.

S. S. Novozhilov, the deputy chairman of Goskomtrud, understood some enterprises might want to avoid the Shchekino Experiment altogether. Like the economist S. Shkurko and the Shchekino Chemical Combine's director P. M. Sharov, Novozhilov observed that factories that already operated efficiently and made full use of extant production capacity stood to gain little from the experiment. On the other hand, inefficient and poorly managed enterprises could benefit handsomely through even modest improvements. The Bashkir variant of the Shchekino Experiment was designed to correct this contradiction. The Bashkir variant began at the Bashkir Petrochemical Association (*ob"edinenie*) in the Bashkir autonomous republic located between the Volga River and the Ural Mountains. Encompassing seven enterprises, the Bashkir Petrochemical Association was a typical, though large, example of an industrial association. Under the conditions of the Bashkir variant, up to thirty percent of savings to the wage fund were transferred to the control of the association. The total was

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Party Committee and the Staff of the Shchekino Chemical Plant on Improving Labor Productivity" (22 January 1970).

[6] GATO f. P – 177, op. 55, d, 99, l. 141 "Speech by Dimitrievskii" (22 January 1970).

subsequently redistributed among its constituent enterprises according to rate of labor productivity. To account for differences among production processes, labor productivity was determined homogenously in the association's enterprises by ratio of labor norms. The ratio of labor norms, in turn, was used to measure the price of labor, which ultimately served as the basis for redistributing the association's cumulative savings. Individual enterprises also had the opportunity to increase bonus payments by setting and fulfilling labor productivity plans that exceeded the association's assignment. Table 7.2 demonstrates the effects of the Bashkir variant of the Shchekino Experiment in two enterprises of the Bashkir Petrochemical Association up to 1970. It shows how, though the Ufa Synthetic Alcohol Plant released a higher share of workers and contributed more to the association's centralized wage fund than did the Novo-Ufa Oil Refinery, the latter, a comparatively "more advanced" enterprise in Novozhilov's description, received more funds for bonus payments. Had these enterprises applied the Shchekino Experiment independently and without adjustments, the results would have been reversed. Preliminary results were encouraging. In 1969, aggregate labor productivity grew by 104.4 percent over the previous year.[7] Soon, the Bashkir variant of the Shchekino Experiment became a national phenomenon in its own right. By 1971, forty-nine enterprises in the Ministry of the Chemical Industry and twenty-six in the Ministry of Oil Refining and Petrochemical Industry formed parts of associations operating according to

[7] GATO f. P – 177, op. 55, d, 99, ll. 66-69, 71. According to one brigade leader in Karagalinskii, a mining town in Kemerovo region, similar problems manifested on the micro level. In the event that two brigades mined the same amount of coal, for example, the collective that overfulfilled its assignment by a greater ratio would receive a higher bonus. In this way, brigades could actually be punished for their honesty and ambition. See V. Sharkov, "Glavnyi printsip," *Izvestiia* 14 February 1972, 2.

the Bashkir variant of the Shchekino Method.[8]

Method of remuneration was another reason for altering the standards of the Shchekino Experiment. P. Matveev from the Shchekino Chemical Combine argued that precisely because most of its workers were paid by the piece "the conditions for creating wage funds and material incentives" in the Kirov Dinamo plant, a Moscow machine-building factory, were necessarily "quite different than in Shchekino."[9] M. T. Egorshev, the deputy director of the Kirov Dinamo plant, explains in more detail. Egorshev reported that the Dinamo Factory adopted a "system of individual planning" under which workers

Table 7.2
Sample Results of the Bashkir Variant in Two Enterprises to 1970

	Novo-Ufa Oil Refinery	**Ufa Synthetic Alcohol Plant**
Share of Employees Released*	10.7	18
Coefficient of the Level of Labor Norms	1.09	.77
Funds Received from the Enterprises**	28,400	50.1
Funds Allocated to the Enterprises**	34,700	41.2

Source: GATO f. P – 177, op. 55, d. 99, ll. 69-70.
*denotes in percentage
**denotes in rubles

received a personalized five-year production plan. Subdivided into quarters and months, these individual plans took into account variables including standard wages, range of manufactured products, and the completion of assigned tasks. This method, Egorshev continued, was sufficiently vague for the machine-building industry, which is

[8] GARF f. 5470 (Collection of the Central Committee of the Trade Union of the Workers of the Chemical and Petrochemical Industries) op. 29, d. 2995, ll. 44-45.

A similar system was worked out at the Groznii Petrochemical Association. See M. Kriukov, "Lishniaia dolzhnost': Opyt Shchekinskikh khimikov – v Groznom," *Pravda* 24 March 1972, 3.

[9] P. Matveev, "Shchekinskii opyt shagaet v strany SEV," *Khimik* 24 September 1970, 2.

characterized by an enormous range of technological operations and different labor processes. Developed for each individual shop according to their own peculiarities, standardized norms represented the primary cog of Dinamo's material incentives fund. These norms allowed shops to better determine growth in sales and the reduction of the cost of labor and material production. But there was more. In machine-building enterprises, technical departments determined the rate of material consumption of technologies and devices; workshops, by contrast, were responsible for putting technology into operation. To compensate the latter, which stood to gain much less in a production regime that sought to reward efficiency, Dinamo established another fund that guaranteed bonuses for workers in the workshops according to the previous year's payouts. In 1970, these workshops received, cumulatively, an eight percent bonus over the previous year. Elsewhere, efforts were made to consolidate work operations or eliminate the need for certain machines, and with them their attendant workers. In other cases, the mechanization of production processes wholly eradicated the need for some auxiliary workers. In the first seven months of 1970, labor productivity had grown by 109 percent; the volume of production increased by 6.7 percent; and 140 workers had been released.[10]

Chapters four and five discussed how the Shchekino Experiment was in part designed to help industrial authorities maintain a favorable ratio of growth of labor

[10] *Rossiiskii gosudarstvennyi arkhiv ekonomiki* (RGAE) fond (f.) 561 (Collection of the Secretariat of the Council for Mutual Economic Assistance), opis' (op.) 28, delo (d.) 129, listy (ll.) 33-45 "Presentation of M. T. Egorshev" (17 September 1970). At least one other factory specifically requested to utilize this variation of the method. See GARF f. P – 9553, op. 1, d. 2553, ll. 293-300 "On the Issue of Holding Events at Glavlenstroimaterialov Enterprises, Following the Example of the Shchekino Chemical Combine" (22 July 1970).

productivity to growth of average wages in enterprises that had adopted the Kosygin Reform. Though factories in Perm' region, located on the Kama River near the Ural Mountains, had experienced some success with the reform, by 1970 directors had lost the battle to control wage growth. One enterprise, the Perm' Electro-Technical Plant, took proactive measures to avoid the same fate. The Perm' Electro-Technical Plant was a small plant of around 4,500 workers. After adopting the Kosygin Reform in July 1966, management made concerted efforts to improve the technological level of production and apply NOT measures. Beginning in 1969, the Perm' Electro-Technical Plant joined the ranks of factories working according to the Shchekino Experiment. From 1969 until 1972 the Perm' Electro-Technical Plant was, like the Shchekino Chemical Combine, permitted to use savings from the salary fund to finance bonuses for workers and to provide additional capital for the socio-cultural fund. But this is where the similarities came to an end. As Novozhilov explained, it would have been inappropriate to implement a stabilized wage fund in enterprises, such as the Perm' Electro-Technical Plant and machine-building enterprises more generally, where both production and labor inputs were in a constant state of flux. Management at the Perm' Electro-Technical Plant instead set out to lower the cost of labor per ruble of product sold. The goal was to increase labor productivity by fifty-three percent while ensuring that no worker's total income increased more than twenty-one percent. The first year of the Perm' variant of the Shchekino Experiment proved beneficial. The volume of products sold and profitability increased by 11.7 and 26.4 percent, respectively, while average wages grew by just 6.7 percent.[11] At

[11] GATO f. P – 177, op. 55, d. 99, ll. 72-73; 118-119, 121-125.

least one economist bemoaned that no other enterprise had adopted the Perm' variant of the Shchekino Experiment.[12]

Beginning in 1968, a similar modification of the Shchekino Experiment was utilized in six large enterprises – four textile, one knitwear, and one spinning mill – in light industry. Reducing spoilage was a major factor in this version of the Shchekino Experiment. Production bottlenecks at several factories were caused by low-quality yarn that was prone to breaking. To inspire more attentive work, bonuses at several enterprises were tied to the quality of yarn produced. As the durability of yarn improved, workers were able to simultaneously service a larger number of machines without getting slowed down by persistent repairs. The price of labor per unit of output was in turn reduced. At the Dedov mill in Moscow, the breakage rate in spinning decreased by more than three times. Similar developments allowed the Furmanov factory in Ivanovo to release more than seventy workers. Altogether, the six factories released 1,105 workers in 1969. In that same year, the rate of labor productivity in four of the six factories to apply a variation of the Shchekino Experiment outpaced that of light industry as a whole.[13]

Not all changes to the Shchekino Experiment were so dramatic. One titanium-magnesium plant in Perm' stabilized its wage fund for a period of six rather than four years (1969-1975).[14] One machine-building plant in the Tula region awarded bonuses to piece-rates for quickly completing short-term tasks.[15] Four printing enterprises received

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[12] V. Boldyrev, "Prodolzhenie eksperimenta," *Pravda* 26 May 1972, 2.
[13] GATO f. P – 177, op. 55, d, 99, ll. 128-132 "Speech by A. Lavrent'eva, Deputy Minister of Light Industry" (22 January 1970).
[14] T. Burakova, "Produktsii bol'she: Po primeru shchekintsev," *Sovetskie profsoiuzy* 14 (1971): 6-7.
[15] E. Korotkov, "Opyt shchekintsev idet vshir'," *Kommunar* 10 October 1970, 1.

permission to form an incentives fund using the savings from decreasing the cost of labor per ruble of products sold.[16] Owing to the fact that no single transportation factory existed in Shchekino, transportation workers could not benefit from a growing material incentives fund; nevertheless, between 1969 and 1970 transportation workers in the region applied new machinery and combined professions in the name of the Shchekino Experiment.[17] Despite their differences, industrial authorities understood each of these modifications – be they major or minor – to be variations of a Shchekino Experiment as each of them saw "producing a larger volume of products with a smaller number of employees" as their foremost responsibility.

Seemingly, the Shchekino Experiment was gaining momentum. By June 1969 there were twenty-two enterprises in the Soviet Union working according to some variation of the Shchekino Experiment.[18] But a December 1969 Central Statistical Agency (TsSU) investigation of the performance of nine of these enterprises uncovered mixed results. TsSU found that, when compared with the first six months of 1968, between January and July 1969 these enterprises increased the rate of labor productivity by five percent and gross output by 4.9 percent. And, since the introduction of the experiment, they had eliminated 4,421 total positions. Of the workers dismissed, 542 were sent to work in newly-constructed shops; 1,162 took on jobs at had previously been vacant; and 1,914 left their previous enterprise altogether. All of the factories utilizing the experiment trained workers to perform multiple professions. Of the total rubles

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[16] GARF f. P – 9553 (Collection of the State Committee on Labor and Wages), op. 1, d. 2553, ll. 26-31 "S. Novozhilov to Goskomtrud" (11 September 1970).
[17] S. Shcheglov, "Na stende i v praktike: pis'ma s avtopredpriiatiia," *Kommunar* 6 February 1972, 2.
[18] I. Karpenko, "God Shchekinskogo eksperimenta," *Izvestiia* 30 June 1969, 3.

Table 7.3
Summary of Performance of Shchekino Method at Nine Factories, 1967-1969

Factory	Applied Exp.	Gross* Production	Labor* Productivity	Rate of Released Labor	Rate of Growth of Avg. Salary incl. Bonuses*
Shchekino Chemical Combine	7/1967	107.5	111.4	9.5	106.2
Novomoskovsk Chemical Combine	7/1968	105.1	106.7	3	110.1
Furmanov Weaving and Spinning Factory	7/1968	103.3	111	5.6	109.3
Lenin "Northern Nickel" Combine	7/1968	96.8	100.7	3.2	105.3
Kuibyshev Synthetic Rubber Plant	10/1968	127.1	103.3	2.7	106.2
Pyshminsk Copper Electrolyte Plant	10/1968	100.8	107.3	7.1	104.6
Balakov Chemical Fibers Combine	1/1969	111.1	114.5	2.3	108.2
Mogilev Synthetic Fibers Plant	1/1969	107.3	107.4	3.3	108.6
Cheliabinsk Metallurgical Plant	1/1969	103.2	102.6	6	101.8
Total	**-**	**104.9**	**105**	**4.6**	**105.3**

*-denotes percentage increase during the first half of 1969 against the first half of 1968
**-denotes since the start of the experiment
Source: GARF f. 5451, op. 68, d. 448, ll. 18-19, 23.

economized, more than 1,000,000 were paid out to workers in the form of bonuses. But the individual sums were meager. Over 11,000 workers of all types, or around thirteen percent of the total personnel at all nine factories, received a bonus. The size of these additional monthly payments was, on average, higher for ITR (13.2 rubles) than workers

(*rabochii*) (10.4 rubles) or white-collar employees (*sluzhashchii*) (10.7 rubles). But overall, the results represented a significant problem. As table 7.3 demonstrates, the average monthly income of industrial and production personnel (exclusive of white-collar employees) at these nine facilities increased by 5.3 percent, higher than the rate of growth of labor productivity.[19] One of the central problems associated with the Kosygin Reform had survived the implementation of the Shchekino Experiment.

The department of mass production and wages of the All-Union Central Council of Trade Unions (VTsSPS) countered by arguing that the TsSU's report did not tell the whole story. At four of the nine enterprises studied, the ratio of labor productivity to wage growth was upside down because of unique situations TsSU failed to consider. The Lenin "Northern Nickel" Combine had planned for a decrease in the growth rate of labor productivity because the mine was temporarily, and purposefully, refining low-quality ore from its flank face. The Kuibyshev Synthetic Rubber Plant's quest to grow labor productivity faster than average wages was rendered impossible by the plant's expansion, which actually required adding workers. Disputing the accuracy of TsSU's calculations, the VTsSPS memo argued that the ratio of labor productivity to wages was in fact correct at both the Novomoskovsk Chemical Combine and the Mogilev Synthetic Fibers Plant. In light of these mistakes, the department of mass production and wages cautioned against making too much of the TsSU's report.[20]

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[19] GARF f. 5451 (Collection of the All-Union Council of Professional Trade Unions), op. 68, d. 448, ll. 17-24 "Report from V. Starovskii to A. N. Shelepin: "On the Experience of the Shchekino Chemical Combine and Other Enterprises in Increasing Volume of Production with a Simultaneous Reduction in the Number of Workers"" (31 December 1969).
[20] GARF f. 5451, op. 68, d. 448, ll. 83-84 "Department of Mass Production and Wages of the VTsSPS to I. M. Vladychenko" (undated, probably early 1970).

Any questions about the durability of the Shchekino Experiment were soon answered. Despite the numerous social and economic hurdles associated with implementing it in an increasingly complex economy, in October 1969 the Central Committee of the Communist Party formally endorsed the Shchekino Experiment and encouraged its further dissemination throughout the Soviet economy. An article published in *Pravda* argued that the Shchekino Experiment was "of great importance" to all of the Soviet Union. Following the lead of the Shchekino Chemical Combine, it predicted, would create "extensive opportunities" for growing production and improving labor productivity.[21] But how should these opportunities be pursued?

To more effectively manage the spread of the Shchekino Method throughout the Soviet economy, it was necessary to draw up formal conditions for transition. This task fell to Goskomtrud. In October 1969, the Council of Ministers advanced a project resolution for industrial leaders' consideration.[22] The importance of labor reorganization – combining duties, expanding zones of service, centralizing management, and eliminating redundant labor – to the method was accepted as a matter of course. But there remained plenty to negotiate. L. A. Kostandov recommended that specialists and shop managers also be eligible to earn bonuses for contributing to the release of personnel. V. Garbuzov from the Ministry of Finance expressed concern that using the wage fund as a basis for applying the experiment would place too great an emphasis on that metric. Referencing the considerable experience with the experiment thus far, I. Vladychenko,

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[21] "Produktsii bol'she, rabotnikov men'she," *Pravda* 9 October 1969, 1.
[22] GARF f. 5446 (Collection of the Council of Ministers), op. 104, d. 213, ll. 4-5 "Resolution Project: "On the Procedure for Further Dissemination of the Experience of the Shchekin Chemical Plant to Industrial Enterprises"" (21 October 1969).

the secretary of the VTsSPS, argued that industrial authorities should avoid a one-size-fits-all approach to implementing the Shchekino Method. [23]

But the clearest indication of the challenges inherent in implementing the Shchekino Method throughout the Soviet economy was provided in a lengthy report issued in 1970 by Iu. Chubarov from the research financial institute of the Ministry of Finance. First, Chubarov expressed his concern regarding the expiration of the experiment. Those enterprises that had adopted the standards of the method in the late 1960s could not be sure how to handle any wage surplus when the conditions that encouraged its preservation were scheduled to expire in 1970. Second, the relative lack of technically-substantiated norms made it difficult to precisely manage the payment of workers who had taken on additional duties; the same problem sometimes left ITR and white-collar employees entirely outside the scope of the experiment. Third, some factories were already operating with a barebones crew and could not dismiss workers without asking others to violate safety regulations.[24]

Empirical study led Chubarov to support Vladychenko's argument. Formal plans for spreading the Shchekino Method, Chubarov concluded, would need to be sufficiently flexible to accommodate different sorts of production processes. In enterprises where time-based wages were dominant it had proven possible to plan a wage fund according to workers' average wages even without the benefit of technically-substantiated norms. In

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[23] GARF f. 5446, op. 104, d. 213, ll. 10-11 "L. A. Kostandov to the Council of Ministers" (24 November 1969); ll. 13-15 "V. Garbuzov to the Council of Ministers" (10 December 1969); l. 12 "I. Vladychenko to the Council of Ministers" (4 December 1969).

[24] RGAE f. 679, op. 2, d. 1450, ll. 35, 23-24 "The System for Stimulating the Growth of Labor Productivity in the Context of a Reduction in the Number of Personnel and Savings in the Wage Fund (Based on the Experience of the Shchekino Chemical Combine)" (1970).

these cases, aggregate savings could be used to grow workers' wages irrespective of the degree of plan fulfillment. Citing the example of enterprises where a plurality of piece-rates workers produced goods industrial leaders were eager to sell, Chubarov showed that the situation was not always so simple. The relationship between norms for piece-rates workers and total rubles economized due to the release of labor was difficult to clarify because the former was constantly changing. Chubarov recommended that these enterprises distribute savings only in the event that the plan was fulfilled. The complications did not end there. Even within a single industrial branch, he observed, differences in technological levels and schemes could complicate introducing the method. Writing in support of the cap placed on individual worker's bonuses in connection with the Shchekino Method, Chubarov worried that releasing labor might affect enterprise savings without improving enterprise performance. For this reason, Chubarov wrote that it would be "impractical to leave all savings for use as bonuses and additional payments to workers."[25]

Chubarov turned in his report to the Ministry of Finance in hopes that it would influence the fate of the Shchekino Method.[26] But that was not the finance ministry's call to make. On 7 December 1970 the Council of Ministers approved a decree establishing regulations for the spread of the Shchekino Method throughout Soviet industry. Some important changes were made to the method's original plan. Industrial enterprises that had already transitioned to the standards of the Kosygin Reform were allowed to adopt

[25] RGAE f. 679, op. 2, d. 1450, ll. 36-38, 41.
[26] RGAE f. 679, op. 2, d. 1450, ll. 51-62 "Some Issues for Improving the Procedure for Conducting the Shchekino Experiment by Iu. Chubarov to I. V. Gluzhkov" (1970).

the experiment with the permission of relevant ministries, Republic-level councils of ministers, and Republic-level trade union committees. In conjunction with Goskomtrud and enterprise directors, these institutions were also required to ensure that labor standards were in line with the technological level of respective factories. Workers subject to the experiment were to be provided with opportunities for technical education and retraining before transition to the method began. As Chubarov had hoped, enterprises adopting the Shchekino Method lost control over a portion of their accrued savings. The 1970 decree specified that ninety percent, rather than the entirety, of these funds would be available to directors to use as bonuses for workers and, as Kostandov had requested, managerial personnel.[27]

The Communist Party resolution on the dissemination of the Shchekino Method was adopted in 1970, just as the Soviet Union entered into what is typically seen as a period of reaction. In this context the Kosygin Reform supposedly came to an abrupt and ignominious end.[28] But the mere continuation of the Shchekino Method, itself a progeny of the Kosygin Reform, speaks to the enduring influence of Kosygin's vision. Moreover, during the early 1970s certain elements of the Shchekino Method actually became embedded in the Soviet economy. Beginning with the ninth five-year plan (FYP, 1971-1975) ministries were assigned a material incentives fund from which subordinate enterprises and associations derived their own. Ministries were permitted to maintain

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[27] GARF f. 5446, op. 104, d. 213, ll. 105-110 "Conditions" (7 December 1970); GARF f. 5446, op. 104, d. 213, ll. 113-113 (ob.) "On the Procedure for Carrying out Measures to Strengthen the Interest of Employees in Increasing Output, Increasing Labor Productivity and Reducing the Number of Employed Personnel" (11 December 1970).

[28] See, for example, Iu. Firsov, "Kosygin i ego vremia," *Rossiisskii ekonomicheskii zhurnal* 5-6 (2004): 57-82; Vladislav Zubok, "The Soviet Union and the Détente of the 1970s," *Cold War History* 8, 4 (Nov. 2008): 427-447.

reserves of credits to ensure the stability of material incentives funds according to conditions of production and total sales made as a result of new production. Using 1970 as a base year, annual increases in the size of enterprises' material incentives funds were determined through a complicated formula – involving gross output, sales, production quality, and labor productivity – for the duration of the FYP.[29] This marked an important departure from the eighth FYP, for which no target indicators were established for labor productivity.[30] It also encroached on the territory of the Shchekino Method; Chubarov went as far as to say that the goals and tactics of the ninth FYP and the Shchekino Method "to some extent duplicate[d]" one another.[31] Writing on the state of economic reform in the early 1970s N. E. Drogichinskii, the head of the Interdepartmental Commission under Gosplan on the Transfer of Industrial Enterprises to the New System of Planning and Economic Incentives, clarified the relationship between labor productivity and the size of material incentives funds. For every percentage of increase or decrease in the former, Drogichinskii explained, the latter was adjusted accordingly by .3

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[29] "Vypiska iz protokola #231b zasedaniia Biuro Mezhvedomstvennoi komissii pri Gosplane SSSR po voprosam ekonomicheskoi reformy ot 29 aprelia 1971g," *Biulleten'* (7) 1971: 20-32.

The importance of quality assurance and that metric's relationship to material incentives was further expanded on in a Council of Ministers decree on 21 June 1971. See "Obzor zakonodatel'stva o trude: O merakh po uluchsheniiu planirovaniia i ekonomicheskogo stimulirovaniia," *Sostialisticheskii trud* 9 (1971): 151-153.

Management of the socio-cultural funds also changed. See "Osnovnye polozheniia ob obrazovanii i raskhodovanii fonda material'nogo pooshchreniia i fonda sotsial'no-kulturnykh meropriiatii i zhilishchnogo stroitel'stva na 1971-1975 gody," *Ekonomicheskaia gazeta* 23 June 1972, 15-16.

[30] There was good reason for prioritizing this metric. As an *Izvestiia* editorial explained, the Soviet Union's promise of full employment meant that labor resources had been exhausted. Hence, labor productivity was the only way to continue to grow the economy See "1971 god: Proizvoditel'nost' truda," *Izvestiia* 25 January 1972, 1. Also see N. Rogovskii, "Uskorenie tempov rosta proizvoditel'nosti truda – Vazhneishaia zadacha piatiletki," *Kommunist* 7 (May 1972): 82-92.

[31] RGAE f. 4372, op. 66, d. 5246, ll. 362-363 "Research Financial Institute of the Ministry of Finance Report on the System for Stimulating Labor Productivity Growth by Saving the Wage Fund" (23 December 1971).

percent.[32] In a continuation of the second wage reform, a December 1972 Central Committee resolution permitted enterprises to distribute funds economized – as a result of releasing workers due to combining professions, expanding service areas, or improving work performance – among their remaining workforces. Bonus earnings could not exceed thirty percent of an individual worker's base pay.[33] In 1974, the right to utilize this system of bonus payments was extended to all enterprises, including those that had not yet implemented the Kosygin Reform.[34] Chubarov was right: by liberating factory-level material incentives funds from the ratchet principle, pinning the size of material incentives funds to the rate of labor productivity, and encouraging directors to grow accounts using rubles accrued through releasing labor, the ninth FYP, along with a collection of associated policy decisions, in effect made it possible for any factory to adopt the Shchekino Method, albeit without the structure provided by ad hoc support committees and propaganda campaigns.

In fact, some contemporaries credited the Shchekino Method with innovating the system of planning. By the 1970s there were two major forms of planning in the Soviet Union. The "balancing" method, the oldest and most common form, entailed negotiating the difference between what the economy demanded on the one hand and what it could potentially produce on the other. The so-called "normative" method posited that planning could best be accomplished via a series of malleable coefficients based on labor norms

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[32] "Khoziaistvennaia reforma i proizvoditel'nost' truda," *Ekonomicheskaia gazeta* 7 Feb. 1972, 8.
[33] GARF f. 5446, op. 106, d. 1707, ll. 1-481 "Decree #842: On Increasing the Minimum Wage of Workers and Employees with a Simultaneous Increase in Rates and Salaries of Average Pay Categories of Workers Employed in Production Industries of the National Economy"" (12 December 1972).
[34] GARF f. 5446, op. 1, d. 878, ll. 79-80 "Decree #633: "On the Introduction at Enterprises (in Organizations) of Industrial Sectors of the National Economy of the Procedure for Material Incentives for Workers for Increasing Output with a Smaller Number of Employed Personnel"" (12 August 1974).

and culminating with the yearly plans that comprised the FYPs.[35] G. Abramov, the deputy minister of the chemical and petroleum engineering industry, saw the Shchekino Method as the forebear to normative planning in the industry he helped supervise. Beginning in the early 1970s, several dozen factories in the chemical and petroleum engineering industry replaced the quintessential element of the Shchekino Method, the stabilized salary fund, with normative planning. Reasoning that, in simple terms, both the Shchekino Method and normative planning shared a similar goal – reducing the cost per ruble of commodity (gross) production – Abramov referred to the latter as a "further development" of the former.[36] Echoing Chubarov, Goskomtrud described the method's influence most clearly when it remarked in 1976 that, "one of the most important elements of the Shchekino Method – material incentives for work with a smaller headcount – has become an integral part of the [national] system of labor organization and remuneration."[37]

As it had proven effective when applied, there was good cause for looking favorably upon the Shchekino Method. Between 1967 and November 1975, over 47,000 workers had been released from their positions at more than 400 enterprises as a part of the Shchekino Method. Like their comrades at the Shchekino Chemical Combine, the fate of these workers was mixed: fifty-two percent took on vacant positions within their home enterprise; twenty-two percent went to work in newly built workshops; and twenty-five

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[35] Birman, ""From the Achieved Level,"" 159-161. Birman stressed that these two methods should not be seen as contradictory. It would be better, he argued, to acknowledge that one could not have existed without the other.
[36] G. Abramov, "Razvitie shchekinskogo opyta i normativnyi metod planirovaniia zarabotnoi platy," *Sotsialisticheskii trud* 12 (1974): 21-26.
[37] GARF f. 5446, op. 111, d. 207, l. 17 "From Goskomtrud to the Council of Ministers on the Spread of the Shchekino Method" (14 April 1976).

percent moved on to entirely new enterprises. Cross-training remained an important part

Table 7.4
Spread of Shchekino Method in Select Industries, 1967-1974

Ministry	Factories		Share of Employees in Industry
	Number	Share	
Oil Refining and Petrochemical	70	30.1	43.1
Coal	6	1.9	0.4
Chemical	150	46	70
Heavy Machine Building	7	6.8	6.4
Electrical	7	2.4	2.8
Timber	29	3.2	2.6
Paper	100	54.3	70.3
Food	12	0.2	0.6
Microbiology	28	41.7	42.8

Source: Ivanov, "Shchekinskii metod v desiatoi piatiletki," 11.

of the experiment. At one petrochemical plant in Angarsk, for example, 1,300 workers mastered a second or a third profession during the ninth FYP alone.[38] But efficacy, formal standards for application, and influence on planning did not translate into widespread proliferation. As table 7.4 shows, the method was most widespread in capital-intensive industries where continuous flow production and, relatedly, time-based remuneration were the rule. Frustrated, Garbuzov criticized the slow spread of the Shchekino Method and challenged the industrial ministers to "ensure [its] widespread introduction" throughout the Soviet economy.[39]

Garbuzov's plea found support in high places. In mid-April 1975 Kosygin charged Goskomtrud and other "interested organizations" with explaining why the

[38] S. Ivanov, "Shchekinskii metod v desiatoi piatiletki," *Sotsialisticheskii trud* 4 (1977): 10-14.
[39] GARF f. 5451, op. 68, d. 520, ll. 302-305 "On Measures to Strengthen the Implementation of the Shchekino Method" (25 March 1975).

Shchekino Method had been so slow to take root.[40] Completed with the help of TsSU, Goskomtrud's survey entailed an analysis of 326 of the (by then) 800 enterprises using the Shchekino Method. Goskomtrud and TsSU found that at facilities that had adopted the Shchekino Method, the rate of labor productivity increased by 6.5 percent (against 6.1 percent in industry overall); ninety-one percent of this growth was the result of improved labor performance (as opposed to, for example, mechanization), a figure that bested industry overall by a rate of almost fourteen percent. During the same period, this same group of enterprises released a total of 14,600 workers. In accordance with Garbuzov, Goskomtrud and TsSU lamented that the bulk of these effects were concentrated in three industries – nonferrous metallurgy, chemicals, and petrochemicals – where the Shchekino Method had long flourished. Based on production processes alone, Goskomtrud and TsSU argued, the Shchekino Method ought to have been widely used in ferrous metallurgy and energy production as well. And yet it remained largely absent from these industries.[41] What other factors were at play?

Based on the study's preliminary findings, Novozhilov speculated that there were four primary reasons that the Shchekino Method was not more widespread in Soviet industry. First, ministries habitually underestimated the amount of work necessary to implement the method. Second, six years after Chubarov warned about their complexity, norms had not been sufficiently applied throughout Soviet industry. As table 7.5 shows, less than half of workers in one collection of industries worked according to established

[40] GARF f. 5446, op. 111, d. 207, ll. 11-12 "On Measures to Strengthen the Implementation of the Introduction of the Shchekino Method" (12 April 1975).
[41] GARF f. 5446, op. 111, d. 207, ll. 14-17.

norms. Third, industrial authorities persistently pilfered enterprises' incentives funds. Fourth, the potential for bonuses to motivate workers was diminished because, just as Chubarov had suggested, the conditions outlining the implementation of the method did not guarantee that all economized funds would be transferred to the material incentives fund at year's end.[42]

The ministries had their own explanations. M. N. Tarasov, the Minister of Light Industry, responded plainly that the textile industry had no need for the Shchekino Method. According to him, the Ministry of Light Industry had a "more effective system for combining work and professions" in place. In textile production, where piece rates were predominant, workers were already paid more for increased production; and in light industry overall, combining jobs automatically resulted in an increase in pay relative to the volume of work. In these industries, the Shchekino Method was therefore confined almost entirely to auxiliary workers, who were on time-based wages. To win over the remaining workers in light industry, the rules would need to change. Tarasov suggested that the potential for bonuses vis-à-vis base wages increase from thirty percent, as was then standard with the Shchekino Method, to a whopping sixty percent for piece-rates workers who took on additional jobs. Providing a partial answer to Goskomtrud's and TsSU's query, the deputy minister of the Ministry of Nonferrous Metallurgy argued that the Shchekino Method would be more widespread if the ministry could ensure that

[42] GARF f. 5446, op. 111, d. 207, ll. 20-23 "S. Novozhilov to the Council of Ministers" (14 April 1976). Published in early 1977, an article in *Socialist Labor* supported Novozhilov's complaints, especially with regard to norms and the pilfering of incentives funds. First, the article noted that only forty percent of ITR in industry overall worked according to norms. Second, the author found that between 1971 and 1975, authorities adjusted the – supposedly stabilized – wage fund at the Cherkassk Chemical Association an absurd seventeen times. See Ivanov, "Shchekinskii metod v desiatoi piatiletki," 14-17.

workers who had combined job duties could, upon retirement, claim the profession that

Table 7.5
Norms in Select Industries in the Soviet Economy

Ministry	Proportion of Workers for Whom Norms could be Developed	Proportion of Workers for Whom Norms have been Developed	Proportion of Workers for Whom Norms have been Applied
Gas Industry	90	70	53
Nonferrous Metallurgy	65	61	49
Machine-tools	80	70	41
Construction and Road Machinery	80	74	39
Paper	70	59	37
Light Industry	75	65	56

Source: GARF f. 5446, op. 111, d. 207, l. 21.

provided a more generous pension. As it stood, the inverse often occurred, prompting workers to "refuse" to take on another job. Echoing Kostandov's 1969 appeal, the Ministry of the Food Industry suggested that managerial staff at enterprises be awarded additional payments of up to twenty percent of their official salary for work that supported the method's goals.[43] Kostandov's deputy minister, K. K. Cherednichenko, was not presented with a formal opportunity to reply to Goskomtrud's memo. But Cherednichenko offered the most pointed analysis when he blamed all of problems with the Shchekino Method on the 1970 protocols.[44]

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[43] GARF f. 5446, op. 111, d. 207, ll. 31-33 "N. N. Tarasov to the Council of Ministers" (19 May 1976); l. 28 "V. V. Borodai to the Council of Ministers" (18 May 1976); l. 34 "V. N. Lein to the Council of Ministers" (19 May 1976).

[44] RGAE f. 459, op. 4, d. 71, l. 18 "To the Deputy Chairman of the Council of Ministers of the USSR, N. A. Tikhomirov, from K. K. Cherednichenko" (28 July 1976).

The Soviet press mentioned other impediments to the spread of the Shchekino Method. For example, an otherwise successful application of the experiment in the Kirov region was spoiled by the Ministry of Transportation's persistent manipulation of the plan and failure to deliver materials on time. See Iu. Kaz'min, "Kirovskii variant," *Pravda* 19 May 1973, 3.

But the effects of the protracted wage reform on the spread of the Shchekino Method demanded the most attention, both in response to Goskomtrud and beyond. The Minister of Ferrous Metallurgy, I. P. Kazanets, had no qualms with Goskomtrud's promotion of the Shchekino Method. He did, however, suggest that Goskomtrud's and TsSU's estimation of the number of enterprises using the method was misleading. According to Kazanets, his industry had adopted a series of measures that, when combined, approximated the implementation of the Shchekino Method. But with the number of decrees that had generalized the method, there was apparently no reason to refer to the reform by name. "[A]t the enterprises of the USSR Ministry of Ferrous Metallurgy," Kazanets wrote, "the Shchekino Method has found wide application, although most of them [enterprises and production associations] are not considered to have switched to this method."[45] The situation was much the same in the Tula Region. In

Table 7.6
Summary of the Wage Reform in Select Industries

Industry	Employees Released*	Savings to Payroll**	Workers Receiving Bonuses***
Chemical	0.9	0.7	6.8
Automobile	0.2	0.1	2.0
Construction and Road Machinery	0.3	0.2	2.1
Meat and Dairy	1.8	1.4	2.8
Total	0.6	0.4	2.3

*denotes in percentage as a total of all workers in the industry
**denotes in percentage of wage fund economized as a result of workers released
***denotes in percentage of number of industrial and production personnel
Source: GARF f. 5451, op. 68, d. 559, l. 63

1977, the Tula regional committee of the Communist Party lamented that, since 1973, the

[45] GARF f. 5446, op. 111, d. 207, ll. 38-39 "I. P. Kazanets to the Council of Ministers" (19 May 1976).

Shchekino Method's dissemination had "essentially ceased." How this happened was no great mystery. Many directors in the region had not introduced the Shchekino Methond "in a comprehensive manner" not out of disinterest but because they were already permitted to accomplish its primary goals – "to stimulate work with a smaller number of workers" – at their own discretion. The result was that a number of enterprises had adopted Shchekino-like schemes piecemeal, though typically "without the proper preparation and implementation" to ensure its efficacy.[46]

To what degree did the wage reform actually spread elements of the Shchekino Method? Answering this question is challenging because Soviet institutions did not always clearly distinguish between the effects of the Shchekino Method and those of Shchekino Method-like policies. According to VTsSPS, between 1973 and 1975 a total of 164,000 industrial workers were released as a consequence of the continuation of the wage reform. This led to a wage fund saving of over 215,000,000 per year. Around 1,000,000 workers took on a new job or expanded their zones of service. By 1976, twenty-eight percent of workers in the textiles industry serviced more than one machine. Labor productivity in all of industry grew by a rate of 6.1 percent, against 5.8 percent during the eighth FYP.[47] But, as table 7.6 shows, when divided by industry, the results

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[46] GATO f. P – 177, op. 83, d. 133, k. 1516, ll. 4-6 "On Measures for the Further Introduction and Development of a Comprehensive Method for Improving the Organization of Labor, Material incentives, and Planning Based on the Experience of the Shchekino Chemical Combine" (8 February 1977).

Writing in the journal *Problems of Economics*, the economist A. L. Mirgaleev made the same basic assertions. See A. Mirgaleev, "Shchekinskii metod i ego perspektiv," *Voprosy ekonomiki* (10) 1977: 104-112. Here, 106-107.

[47] GARF f. 5451, op. 68, d. 559, ll. 30, 48, 51 "Data on the Release of Industrial and Production Rersonnel and the Savings in the Wage Fund Obtained as a Result of Combining Professions (*dolzhnost'*), Expanding Service Areas or Increasing the Volume of Work Performed with the Introduction of New Wage Conditions, by Ministries" (January 1976).

appear much less impressive. Thus, while the wage reform did not have, and could not have had, a transformative influence on Soviet labor relations, its influence nonetheless demonstrates that the constitutive elements of the Shchekino Method were not confined to that method. Flexible production with socialist characteristics, in other words, was broader than just the Shchekino Method.

By then, the Shchekino Method had also been implemented outside of the Soviet Union. Chapter two showed how economic reform in the Soviet Union was shaped in part by a transnational conversation among social scientists working in the Soviet Union, Poland, and the German Democratic Republic (DDR). At least by 1970, intellectuals and industrial leaders from Poland, the DDR, and the other Eastern European people's republics began earnestly studying the Shchekino Method as well. Under the auspices of a meeting of the Council for Mutual Economic Assistance (CMEA), an international institution founded to facilitate economic exchange between socialist countries, in September of that year representatives from throughout the Eastern bloc convened in Shchekino to discuss the method.[48] The purpose of the meeting was to discuss "forms and methods of stimulating the collectives of enterprises in increasing industrial production while reducing the number of employees" utilized in the CMEA nations. P. M. Sharov, the director of the Shchekino Chemical Combine, delivered a lengthy speech that detailed the specifics of the Shchekino Method. Representatives from other Eastern European

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[48] The conference received ample coverage in local media. See "Trudovaia orbita Shchekinskogo eksperimenta: S zasedaniia predstavitelei SEV na khimkombinate," *Znamia kommunizma* 22 September 1970, 1; "Ne chislom, a umeniem," *Znamia kommunizm*a 22 September 1970, 1; P. Bakulin, "Um khorosho, a dva luchshe," *Znamia kommunizma* 22 September 1970, 1; P. Matveev, "Shchekinskii opyt shagaet v strany SEV," *Khimik* 24 September 1970, 2.

On the CMEA see Adam Zwass, *The Council for Mutual Economic Assistance: The Thorney Path from Political to Economic Integration* (Armonk, NY: ME Sharpe, 1989).

nations – including Bulgaria, Hungary, Poland, and Czechoslovakia – provided updates on their own quest for economic efficiency. Still there was no clear indication that the Shchekino Method had been implemented in Eastern Europe.[49] That soon changed. By the mid-1970s, the Shchekino Method was used in at least three factories – the Walter Ulbricht Loin-Werke Combine, the Schwedt Petrochemical Combine, and the Wolfen Film Works – in the DDR. Likewise, a variation of the Shchekino Method in Poland allowed the state to levy penalties against participating enterprises for adding workers to their staff.[50]

By the late-1970s it once again fell to Goskomtrud, Gosplan, the Ministry of Finance, and the VTsSPS to navigate the way forward for the Shchekino Method.[51] Together, these institutions developed new standards for its implementation. Approved on 27 January 1977, the new regulations made five principal changes to the 1970 standards. First, the right to decide to apply the Shchekino Method was turned over to enterprise administration in cooperation with the factory trade union committee. Second, enterprises regained control over the entirety of funds economized from the wage fund through reduction of the size of personnel. But there was a catch. To use these funds as material incentives, an enterprise needed to ensure that its total workforce was smaller than the average workforce for a factory of its size. Third, in what amounted to a formal

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[49] RGAE f. 561 (Collection of the Secretariat of the Council for Mutual Economic Assistance), op. 28, d. 129, ll. 2, 14-32, 46-78 "Minutes of the Seventeenth Meeting of the Permanent Working Group on Labor Productivity of the CMEA Standing Committee on Economic Issues" (17-19 September 1970).
[50] K. Cherednichenko and L. Gol'din, "Uroki Shchekinskogo metoda," *Kommunist* 11 (1979): 37-47. Here, 38-40; Jeffrey Kopstein, *The Politics of Economic Decline in East Germany, 1945-1989* (Chapel Hill: University of North Carolina Press, 1997), 168-169, 234 fn. 38.
[51] GARF f. 5446, op. 111, d. 207, l. 44 "Notes from the Minutes of the Meeting of the Presidium of the Council of Ministers of the USSR" (19 May 1976).

endorsement of the Bashkir variant, production associations were permitted to maintain up to twenty percent of savings in a centralized fund to be dispersed among constituent enterprises based on level of labor norms applied. Fourth, at year's end, enterprises were allowed to transfer up to fifty percent of any unused funds accrued as a result of improving labor organization to their material incentives fund. Fifth, ministries were required to provide norms and stable, yearly plans for wages per unit of output to subordinate enterprises transitioning to the Shchekino Method.[52]

The January 1977 conditions were unsuccessful and, if anything, had a negative effect on the Shchekino Method. Whereas between 1975 and 1976 the total number of enterprises using the method doubled from 400 to 800, between 1976 and October 1977, the total grew to just 1,000. Cherednichenko, as outspoken as ever, attributed the decree's failure to protect enterprises on the Shchekino Method from burden of the ratchet principle.[53] Focused as they were on gross production, enterprises were reluctant to dismiss workers. According to one *Pravda* editorial, many reverted to the old habit of hoarding labor.[54] G. N. Grotseskul, first secretary of the Shchekino city committee of the Communist Party, disagreed and instead argued that the root of the decline in the spread of the Shchekino Method was the clause that affixed bonuses to reduction of personnel vis-à-vis industry-wide averages.[55]

In the Tula region, where the method originated, the 1977 instructions were met

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[52] "Shchekinskomu metodu – shirokoe primenenie," *Ekonomicheskaia gazeta* 6 February 1977, 17-18. Also see Norr, "Shchekino," 155-156.
[53] K. K. Cherednichenko, *Sovershenstvovanie organizatsii truda i upravleniia v khimicheskoi promyshlennosti* (Moscow: Khimiia, 1982), 58.
[54] "Shchekinskii metod," *Pravda* 26 July 1978, 1.
[55] G. N. Grotseskul, *Rabotaiushchikh men'she - produktsii bol'she: Shchekinskii metod: sushchnost', opyt, problemy* (Moscow: Ekonomika, 1984), 29.

with indifference. At one factory in Aleksin, a city about seventy kilometers northwest of the city of Tula, a resolution on implementing the Shchekino Method was adopted in March 1977, but the party bureau never bothered to put it into action. What is more, the few technical plans in existence effectively ignored the creation of norms. It should come as no surprise, then, that by early 1978, ten out of sixteen enterprises in the city employed more workers than called for in the yearly plan.[56] The deputy secretary of the Party Committee of the Aleksin Chemical Plant intentionally ignored attempts to spread the Shchekino Method because, as he saw it, introducing the method would be a challenge due to chronic adjustments to the wage fund and the production plan.[57] The Shchcekino Method's spread in the city of Shchekino did not fare much better. I. Iunak, the secretary of the Tula regional community of the Communist Party, complained that the city's party committee did not assume an active role in introducing the experiment or explaining its potential benefits to workers. "It is not enough to simply direct the work on the introduction of the Shchekino Method," he remarked. At a number of factories bookkeeping was in such a state of disarray that administration could not make any record of workers' input on the state of labor organization.[58]

By April 1978, another set of standards for the Shchekino Method, developed by Goskomtrud, Gosplan, the Ministry of Finance, and the VTsSPS, was established. Norr is

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[56] GATO f. P – 177, op. 78, d. 122, k. 1453, ll. 5-6 "On the Work of the Aleksin City Committee of the Communist Party on the Implementation of the Resolution of the Bureau of the Regional Committee of the Communist Party on 8 February 1977" (5 April 1978).
[57] GATO f. P – 177, op. 78, d. 122, k. 1453, l. 11 "On the Application of the Shchekino Method at the Aleksin Chemical Plant" (April 1978).
[58] GATO f. P – 177, op. 83, d. 128, k. 1516, ll. 4-5 "On the Work of the Shchekino City Committee of the Communist Party on the Introduction and Further Development of the Shchekino Method of Increasing Labor Productivity" (19 May 1977).

surely right when he refers to this version as a "major victory" for advocates of the schema.[59] In an important change, even enterprises that maintained a staff in excess of industry-wide averages were permitted to control up to seventy percent of funds economized for bonus payments. Crucially, this encouraged new and expanding factories to apply the method. Control over the entirety of savings that remained in an enterprise's coffers at the end of a given year was returned to enterprise administration. Workers in especially challenging or dangerous jobs could receive bonuses that totaled up to fifty percent of their base pay while the maximum of thirty percent was maintained for other workers as well as supervisors and engineers who contributed to decreasing the size of enterprise personnel. Tarasov's recommendations were taken seriously, and supervisors were allowed to pay piece-rates workers bonuses that totaled up to sixty percent of their base wage. But the most significant change pertained to norms. Though their development and implementation remained preferred, enterprises that had not yet finalized norms were nonetheless free to utilize the method. This had the effect of making the Shchekino Method available to every enterprise and production association in the Soviet Union.[60]

In 1979, Goskomtrud and TsU studied the effect of the Shchekino Method on the Soviet economy during the previous year. At long last, the method seemed to be catching on in Soviet industry. In 1978, some variation of the Shchekino Method was used in

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[59] Norr, "Shchekino: Another Look," 157.

[60] "O poriadok primeneniia Shchekinskogo metoda sovershenstvovaniia organizatsiia truda, material'nogo stimulirovaniia i planirovaniia" *Sotsialisticheskii trud* 7 (1978): 9-11.

In the same issue, the economist and head of the Department of Wages at Goskomtrud R. Batkaev provides helpful commentary on the transition to the 1978 standards. See R. Batkaev, "Vazhnoe napravlenie stimulirovaniia ekonomii truda," *Sotsialisticheskii trud* 7 (1978) 3-9.

fifteen ministries influencing the careers of over 15,500,000 workers in 9,600 production associations and enterprises. Of these, 934 used the original plan, sometimes referred to as the "complex application." Collectively, these facilities increased labor productivity by 5.5 percent over 1977; by contrast, that figure was 3.6 percent in industry overall. During the same period, 8,636 associations and enterprises used some aspect of the method. At these facilities over 180,000 workers were released while more than 340,000 took on an additional profession. Just over forty-six percent of released workers found jobs at newly constructed workshops or in vacant positions. More than half a million workers received at least one bonus payment. The Ministry of Pulp and Paper and the Ministry of the Petrochemical Industry used the method especially widely. It was also common on state farms and in the Ministry of Light Industry. The dissemination was not problem-free. Goskomtrud and TsSU expressed concern that several industries – including the gas and coal industries – had barely taken advantage of the method at all. The institutions determined that there were several reasons ministries might not be eager to use the Shchekino Method. First of all, some ministries had not bothered to develop an organizational plan for its implementation. Others had not created norms for wage expenditure, which made it impossible to ascertain changes in the cost of labor. Even when norms were established, directors were sometimes reluctant to use the experiment because, in pinning the wage fund to the five-year plans, Gosplan and the ministries had effectively institutionalized the dreaded ratchet principle.[61] In these circumstances, some

[61] GARF f. 5451, op. 58, d. 597, ll. 288-293 "V. G. Lomonosov and L. M. Volodarskii to N. Tikhonov: "On the Results of the Work of Industrial Enterprises on the Application of the Shchekino Method in 1978"" (13 November 1979). State farms were eager proponents of the experiment even from the early days. In the early 1970s, the Ministry of Agriculture asked for and received permission to expand the

apparently determined that applying the method was simply more trouble than it was worth.

The spread of the Shchekino Method throughout Soviet industry was a sluggish and complicated process. Though organizational blunders and administrative conservatism were not irrelevant factors, in many cases the dissemination was slowed as aspects of the method were changed to address very real, and pressing, problems with its application. Uncovering and exploiting "reserves of production" is a necessary step to accomplish economic efficiency. But rewarding poorly run enterprises for finally doing so really did seem to punish, or at least disregard, enterprises that had been managed responsibly for some time. Moreover, an incentives structure conceptualized in an industry dominated by continuous flow production processes and time-based wages had little chance of succeeding in textile production, for example, without major modifications. And the process of universalizing norms, what Chubarov once referred to as "an indispensable condition for a more complete use of the Shchekino method," proved to be a perpetual struggle.[62] In short, already by the 1960s, the Soviet economy had become far too complex and multifaceted for simple, standardized solutions. Despite these substantial hurdles, the core elements of the Shchekino Method became available for voluntary use by the early 1970s, and the complex application was ultimately generalized in 1978. As a scion of the Kosygin Reform, the Shchekino Method represents

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number of state farms working according to the Shchekino Method from fourteen to 300. See GARF f. 5446, op. 106, d. 290, ll. 16-17 "On the Transfer of Labor Remuneration to Experimental Conditions of the System of the Ministry of Agriculture of the USSR" (undated, probably late 1971 or early 1972).

[62] Iu. Chubarov, "Ekonomicheskie usloviia razvitiia shchekinskogo opyta," *Sotsialisticheskii trud* 2 (1976): 61-65. Here, 61.

an example of Kosygin's enduring influence on the shape of the Soviet system.

Epilogue

This brief epilogue discusses the track record of flexible production and its relationship to global socioeconomic developments in the late twentieth century. Designed to provoke further discussion rather than advance a clearly articulated thesis, this discussion is largely speculative. "Making Socialism Work" has used "flexible production with socialist characteristics" to conceptualize the set of social relations inaugurated by the Shchekino Method. Flexible production, it has shown, was not unique to the capitalist mode of production; its fundamental elements were capable of serving the needs of more than one master. Internationally, this implies a shared condition among industrialized nations; domestically, it suggests the possibility of continuity between stages of domestic development. The former has been discussed in this dissertation; the latter is exemplified by what occurred after the dissolution of the Soviet Union in 1991.[1] In what ways, the epilogue asks, did the socioeconomic structure of the Soviet Union prepare post-Soviet Russia for its encounter with late twentieth century capitalism in its neoliberal form?

Johanna Bockman's *Markets in the Name of Socialism* persuasively shows that the core features of neoliberalism – defined as a collection of ideas about how to organize an economy that shapes political policies to favor deregulation, privatization, and the liberal flow of capital, labor, and trade – were not antithetical to the theories of socialism advanced by economists in Eastern Europe during the Cold War.[2] What Bockman's

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[1] Claudio Morrison's excellent study of the famous Ivanovo textile producing region also uncovered continuity with the Soviet period. Morrison's study, however, is focused on the domestic context rather than the international or global. See Claudio Morrison, *A Russian Factory Enters the Market Economy* (New York: Routledge, 2008).

[2] Johanna Bockman, *Markets in the Name of Socialism: The Left-Wing Origins of Neoliberalism* (Stanford: Stanford University Press, 2011), 4-5.

groundbreaking study of economic theory does not discuss is the transition from economies of scale to economies of scope – that is, the shift from the mass production of a limited range of commodities using basic machinery over long production cycles to the comparatively small-scale production of numerous, interrelated commodities using specialized equipment over short production cycles – that tends to characterize neoliberalism in the factory.[3] In the capitalist world, but especially the United States and Japan, the evolution from economies of scale to economies of scope entailed the creation of a "flexible" worker that, rather than specializing in one or two basic tasks, was capable of handling multiple responsibilities simultaneously.[4] In the midst of restructuring, major producers sought to limit spending, a goal they achieved by suppressing organized labor, cutting wages, and lobbying against regulation and progressive taxation.[5] All of this was

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Also see Yakov Feygin, "Reforming the Cold War State: Economic Thought, Internationalization, and the Politics of Soviet Reform, 1955-1985" (PhD Dissertation: University of Pennsylvania, 2017); Brian Porter-Szűcs, "From *Homo Sovieticus* to *Homo Economicus*: The Transformation of the Human Subject in Polish Socialist Economic Thought," *East European Politics and Societies and Cultures* 34, 3 (August 2020): 546-570.

[3] Michael Aglietta, *A Theory of Capitalist Regulation: The U. S. Experience* (London: New Left Books, 1979); Michael J. Piore and Charles F. Sabel, *The Second Industrial Divide: Possibilities for Prosperity* (New York: Basic Books, 1984); Ash Amin, ed. *Post-Fordism: A Reader* (Oxford: Blackwell, 1994).

[4] On the link between neoliberalism and flexible production see, for example, Carla Freeman, "The "Reputation" of Neoliberalism," *American Ethnologist* 34, 2 (May 2007): 252-267; Martha Crowley and Randy Hodson, "Neoliberalism at Work," *Social Currents* 1, 1 (February 2014): 91-108; Madison Van Oort, "Making the Neoliberal Precariat: Two Faces of Job Searching in Minneapolis," *Ethnography* 16, 1 (March 2015): 74-94; Pete Thomas, Louise McAardle, and Richard Saundry, "Introduction to the Special Issue: The Enactment of Neoliberalism in the Workplace: The Degradation of the Employment Relationship," *Competition & Change* 24, 2 (April 2020): 105-113.

[5] David T. Ellwood and Glenn Fine, "The Impact of Right-to-Work Laws on Union Organizing," *The Journal of Political Economy* 95, 2 (April 1987): 250-273; Edward Soja, *Postmodern Geographies* (London: Verso, 1989); David Harvey, *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change* (Cambridge: Blackwell, 1999 [1990]); Robert Brenner, *The Boom and the Bubble: The US in the World Economy* (London: Verso, 2003 [2002]); Nancy MacLean, *Democracy in Chains: The Deep History of the Radical Right's Stealth Plan for America* (New York: Viking, 2017).

On the erosion of union power see, for example, Michael Goldfield, *The Decline of Organized Labor in the United States* (Chicago: University of Chicago Press, 1987); Pierre Rosanvallon, *La question syndicale: Historie et avenir d'une forme sociale* (Paris: Calmann-Lévy, 1988); the relevant essays in Wolfgang Schroeder and Bernhard Weßels, eds., *Die Gewerkschaften in Politik und Gesellschaft der Bundesrepublik Deutschland* (Wiesbaden: Westdeutscher Verlag, 2003); Chris Howell, *Trade Unions and the State: The Construction of Industrial Relations Institutions in Britain, 1890-2000* (Princeton: Princeton University Press, 2009).

pursued in the name of ensuring that concerns remained viable in an increasingly competitive business climate. Put simply, "flexible production" is the social corollary to neoliberal political theory.

Invoking the phrase "flexible production" thus posits some level of similarity in the way that labor was organized in the Soviet Union and the United States and Japan in the latter's neoliberal period. The dissertation has examined the extent of those commonalities. How did the performance of the Soviet economy measure up? Citing the slower rate of growth experienced at the Shchekino Chemical Combine in the mid-1970s, a point discussed in chapter six, the few scholars who have treated the Shchekino Method directly tend to agree that it failed to solve production problems in the Soviet Union.[6] But to the extent that it could have impacted these measurements, tables 8.1 through 8.3 demonstrate that flexible production did not actually contribute to long term, improved production in any of the nations with which it is most closely associated. None of this is unknown to economists, who have long been fascinated by what they call the "Solow paradox," named for Robert Solow, the economist who once wrote "[y]ou can see the computer age everywhere but in the productivity statistics."[7] From this perspective, the

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This process occurred slightly later in Japan. See Keisuke Nakamura, "Decline or Revival? Japanese Labor Unions," *Japan Labor Review* 4, 1 (Winter 2007): 7-22.

[6] Jeanne Delamotte, *Shchekino, entreprise soviétique pilote* (Paris: Éditions ouvrières, 1973); Sergei S. Kasakow, "The Nature, Industrial Experience, and Economic Results of Shchekino's Incentive Scheme in Soviet Industry," *Southern Economic Journal* 41, 1 (July 1974): 134-140; Henry Norr, "Shchekino: Another Look," *Soviet Studies* 38, 2 (April 1986): 141-169; Bob Arnot, *Controlling Soviet Labour: Experimental Change from Brezhnev to Gorbachev* (London: Macmillan, 1988).

The one exception is Peter Rutland, who explained the Shchekino Experiment's enduring presence by interpreting the Shchekino Chemical Combine as one example in a series of highly publicized "advanced" enterprises meant to serve as models for other Soviet factories. Rutland is generally ambivalent on the economic effect of the method. See Peter Rutland, "The Shchekino Method and the Struggle to Raise Labour Productivity in Soviet Industry," *Soviet Studies* 36, 3 (July 1984): 345-365.

[7] Robert M. Solow, "We'd Better Watch Out," *New York Times Book Review* (12 July 1987), 36.

Also see Paul A. David, "The Dynamo and the Computer: An Historical Perspective on the Modern Productivity Paradox," *The American Economic Review* 80, 2 (May 1990): 355-361; Jack E. Triplett, "The Solow Productivity Paradox: What do Computers do to Productivity?," *The Canadian*

Table 8.1
Comparison of Rates of Growth in Selected Indicators, Soviet Union and the United States

	Soviet Union				United States	
	1928-1980	**1950-1980**	**1960-1980**	**1970-1980**	**1950-1980**	**1970-1980**
GNP / GDP	4.4	4.7	4.2	3.1	3.3	3.0
GNP / GDP per capita	3.1	3.3	3.1	2.1	1.9	2.0
Household Consumption	3.6	5.0	4.3	3.6	3.5	3.3

Source: Gur Ofer, "Soviet Economic Growth: 1928-1985," *Journal of Economic Literature* 25, 4 (1987): 1767-1833. Here, 1780.

Table 8.2
Comparison of Rate of Growth of Labor Productivity, Japan and the United States

Japan			
	1913-1950	**1950-1973**	**1973-1980**
GDP	2.2	9.3	3.4
Labor Productivity (per employee)	1.3	7.5	2.6
Labor Productivity (per hour)	1.8	7.4	3.2
United States			
GDP	3.2	4.0	2.5
Labor Productivity (per employee)	1.9	2.3	0.2
Labor Productivity (per hour)	2.8	2.5	0.7

Source: Gilbert Cette, Yusuf Kocuglu, and Jacques Mairesse, "Productivity Growth and Levels in France, Japan, the United Kingdom and the United States in the Twentieth Century," *NBER Working Paper* no. 15577 (Dec. 2009): 31.

Journal of Economics 32, 2 (April 1999): 309-334; Robert J. Gordon, *The Rise and Fall of American Growth: The US Standard of Living since the Civil War* (Princeton: Princeton University Press, 2016).

As two scholars who otherwise praise flexible manufacturing systems have written, "implementation [of flexible manufacturing] does not directly result in production and quality benefits." See F. Frank Chen and Everett E. Adam, Jr. "The Impact of Flexible Manufacturing Systems on Productivity and Quality," *IEEE Transactions on Engineering Management* 38, 1 (Feb. 1991): 33-45. Here, 33.

Nor would it be wise to assume that it resulted in a more rational distribution of labor. Though most economists accept that advanced production technologies cause some temporary job loss, there is little agreement about whether they are a source of long-term unemployment. Important publications on this matter include: Wassily Leontif, "Technological Advance, Economic Growth, and the Distribution of Income," *Population and Development Review* 9, 3 (Sept. 1983): 403-410; Jacob Mincer and Stephan Danninger, "Technology, Unemployment, and Inflation," *NBER Working Paper* no. 7817 (July 2000); and Gregory R. Woirol, *The Technological Unemployment and Structural Unemployment Debates* (Westport: Greenwood Press, 1996).

Table 8.3
Rates of Growth of Labor Productivity, Soviet Union

1940: 1965	1965: 1970	1970: 1975	1975-1980
1: 3.7	1: 1.32	1: 1.34	1: 1.03

Source: *Narodnoe khoziaistvo SSSR v 1980: Statisticheskii ezhegodnik* (Moscow: Financy i statistika, 1981), 38, 40, 42-43.

Soviet Union of the 1970s appears less a system helplessly caught in the clutches of a terminal stagnation and more a society in search for answers to socioeconomic questions that vexed much of the industrialized world. Considering its effects were transregional and spread across socioeconomic systems, does it make sense to attribute the dissolution of the Soviet Union to disappointing economic performance?

Some fifteen years later, of course, the Soviet Union ceased to exist. Since then, there has been no shortage of discussion about its demise.[8] That the best, and most empirically sound, explanation of the end of the Soviet period – Stephen Cohen's argument that Boris El'tsin and his allies seized on a unique moment in time to dismantle the Soviet Union for their own benefit – has been overshadowed by the simplest – Martin Malia's and Stephen Kotkin's shared teleological argument that the Soviet Union, and above all its planned economy, were destined to fail – is an indication of the stubbornly conservative nature of the field.[9] In this latter interpretation, Mikhail Gorbachev's *perestroika* and *glasnost'* reform campaigns represent the clearest example that the Soviet Union could not change.[10] This is not the place for a reinterpretation of

[8] For the latest addition to this literature see Vladislav M. Zubok, *Collapse: The Fall of the Soviet Union* (New Haven: Yale University Press, 2021).
[9] Stephen F. Cohen, "Was the Soviet System Reformable?," *Slavic Review* 63, 3 (Autumn 2004): 459-488; See Martin Malia, *The Soviet Tragedy: A History of Socialism in Russia, 1917-1991* (New York: Free Press, 1994); Stephen Kotkin, *Armageddon Averted: The Soviet Collapse, 1970-2000* (New York: Oxford University Press, 2001); Stephen Kotkin, "Modern Times: The Soviet Union and the Interwar Conjuncture," *Kritika* 2, 1 (2001): 111-164.
[10] For a clear example of this position see Martin Malia, "Leninist Endgame," *Daedalus* 121, 2 (Spring 1992): 57-75.

perestroika.[11] Suffice it to say, however, that Gorbachev's programs transformed the Soviet Union to a degree that, by the late 1980s, it was already a profoundly different country than the one presided over by Leonid Brezhnev and Alexei Kosygin just a decade earlier. The economy was no exception. As Philip Hanson – certainly no apologist for Soviet socialism – once wrote about the relationship between *perestroika*, the planned economy, and the end of the Soviet period: the "old Soviet system [of planning]" did not "fail;" it was "abandoned."[12] Robert C. Allen has already done away with the argument that it was "planning" that doomed socialism in the Soviet Union.[13] Why, then, was it abandoned? And what did that abandonment look like: on the factory floor but also in institutions like the State Planning Committee?

"Making Socialism Work" has used "flexible production with socialist characteristics" to conceptualize the set of social relations inaugurated by the Shchekino Method. While the phrase "socialist characteristics" is employed to account for its unique qualities, "flexible production" nonetheless implies the possibility that Soviet labor might adapt – forcibly or otherwise – to capitalism at its neoliberal stage. What, then, was the Soviet economy's relationship with neoliberalism? This dissertation has shown that well before the dissolution of the Soviet Union in 1991, Soviet workers were accustomed to

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[11] The best discussion remains Moshe Lewin, *The Gorbachev Phenomenon: A Historical Interpretation*, Second Expanded Edition (Berkeley: University of California Press, 1991 [1989]). Also see Philip Hanson, *From Stagnation to Catastroika: Commentaries on the Soviet Economy, 1983-1991* (New York: Praeger, 1992); Donald Filtzer, *Soviet Workers and the Collapse of Perestroika: The Soviet Labour Process and Gorbachev's Reforms, 1985-1991* (New York: Cambridge University Press, 1994); Chris Miller, *The Struggle to Save the Soviet Economy: Mikhail Gorbachev and the Collapse of the USSR* (Chapel Hill: University of North Carolina Press, 2016).
[12] Philip Hanson, *The Rise and Fall of the Soviet Economy: An Economic History of the USSR from 1945* (New York: Routledge, 2014 [2003]), 236.
[13] Robert C. Allen, *From Farm to Factory: A Reinterpretation of the Soviet Industrial Revolution* (Princeton: Princeton University Press, 2003); Maximilian Krahé, "TINA and the Market Turn: Why Deindustrialization Proceeded under Democratic Capitalism but Not State Socialism," *Critical Historical Studies* 8, 2 (Fall 2021): 209-238.

elements of flexible production. This is not to suggest that the Communist Party established capitalism in the Soviet Union.[14] Rather, it is to demonstrate that the definition of socialism in the Soviet Union encompassed numerous visions and practices. Building on Bockman's insights into the dissemination of economic ideas, "Making Socialism Work" shows that the socialist world was an active participant in the spread of the socioeconomic practices that, however inadvertently, helped to create the conditions of possibility for neoliberal reforms.[15] After all, it is not difficult to imagine how the lessons the Shchekino Method taught workers and managers – regarding labor organization, wages, bonuses, profit, and responsible spending – could be repurposed to suit something other than a socialist agenda.[16]

Indeed, there is evidence to suggest that this is precisely what happened. Today, there is some debate over the degree to which the economic regime that followed the

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[14] Though this position has its own adherents. For the best of this literature see Andrew Sloin, "Theorizing Soviet Antisemitism: Value, Crisis, and Stalinist "Modernity,"" *Critical Historical Studies* 3, 2 (Fall 2016): 249-281.

[15] Neoliberalism is not a unified, homogenous structure. See Jamie Peck and Adam Tickell, "Neoliberalizing Space," *Antipode* 34, 3 (July 2002): 380-404; Anna Lowenhaupt Tsing, *Friction: An Ethnography of Global Connection* (Princeton: Princeton University Press, 2005); Ong Aihwa, *Neoliberalism as Exception: Mutations in Citizenship and Sovereignty* (Durham: Duke University Press, 2006).

The recognition that neoliberalism is a broad term used to describe a number of theories and practices has allowed some scholars to observe within socialist systems features reminiscent of neoliberal regimes. See P. Sean Brotherton, ""We Have to Think Like Capitalists but Continue Being Socialists:" Medicalized Subjectivities, Emergent Capital, and Socialist Entrepreneurs in post-Soviet Cuba," *American Ethnologist* 35, 2 (May 2008): 259-274; Emily J. Elliott, "Soviet Socialist Stars and Neoliberal Losers: Labour Migrants in Moscow, 1971-1991," *Journal of Migration History* 3 (2017): 274-299; Isabella Weber, "Origins of China's Contested Relation with Neoliberalism: Economics, the World Bank, and Milton Friedman at the Dawn of Reform," *Global Perspectives* 1, 1 (April 2020): 1-14.

[16] In a widely cited work published in 2005, the anthropologist Alexei Yurchak asked how Soviet citizens, many of whom believed that the Communist Party's hold on power was "forever," were nonetheless well-equipped to deal with the demise of the Soviet system. Yurchak found his answer in the contradictory discursive forms that emerged in the Soviet Union during the late twentieth century. By the late 1980s, he concluded, many Soviet citizens had mastered the art of improvisation and developed the capacity to think independently. But the Shchekino Method suggests that the discourses Yurchak analyzed were preceded – or at least accompanied – structurally by economic and social practices that also would have been useful to those navigating the end of the Soviet period. See Alexei Yurchak, *Everything Was Forever, until it Was No More: The Last Soviet Generation* (Princeton: Princeton University Press, 2005).

Soviet period can be understood as "neoliberal."[17] There was less doubt in the mid-1990s. In 1994, the Nobel laureate Douglass North published a scathing critique of the economic programs implemented to facilitate Eastern Europe's transition to capitalism. North accused the neoclassical economists, i. e. advocates of neoliberalism, working in in the region of neglecting the importance of institutions to the feasibility of any economic program. Their shared assumption – that "privatization is…a panacea for solving poor economic performance" – was fundamentally flawed, North asserted.[18] Their approach

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[17] The discussion centers around the degree to which neoliberal reforms were implemented not whether they were pursued. See, among others, Boris Kagarlitsky, *Russia Under Yeltsin and Putin: Neo-Liberal Autocracy* (Sterling, Va: Pluto Press, 2002); Tatyana Teplova, "Welfare State Transformation, Childcare, and Women's Work in Russia," *Social Politics* 14, 3 (Fall 2007): 284-322; Susanne Wengle and Michael Rassel, "The Monetisation of *l'goty*: Changing Patterns of Welfare Politics," *Europe-Asia Studies* 60, 5 (July 2008): 739-756; Julie Hemment, "Soviet-Style Neoliberalism? *Nashi*, Youth Voluntarism and the Restructuring of Social Welfare in Russia," *Problems of Post-Communism* 56, 6 (Nov.-Dec. 2009): 36-50; Stephen J. Collier, *Post-Soviet Social: Neoliberalism, Social Modernity, Biopolitics* (Princeton: Princeton University Press, 2011); and Peter Rutland, "Neoliberalism and the Russian Transition," *Review of International Political Economy* 20, 2 (2013): 332-362. For the same in Eastern Europe see Venelin I. Ganev, "The "Triumph of Neoliberalism" Reconsidered: Critical Remarks on Ideas-Centered Analyses of Political and Economic Change in Post-Communism," *East European Politics and Societies* 19, 3 (Summer 2005): 343-378.

Maintained by scholars such as Stephen Kotkin, the suggestion that Russia's transition to neoliberal capitalism need be total for it have occurred is, of course, ridiculous as it establishes an impossible standard that virtually no structure could satisfy. Kotkin, for example, has remarked that: "Numerous critics blamed the supposedly dogmatic monetarist reforms, which were derided as "Thatcherism" and "market Bolshevism." But these critics neglected to *demonstrate* that Russia underwent ruthless neo-liberal reforms. It did not." See Kotkin, *Armageddon Averted*, 116. To begin, this is an ironic statement to make in a book whose claims are based on virtually no research. Moreover, neoliberalism was and is as much about reactionary social policies as utopian ideas – about monetary reform or anything else – that most outside of privately funded thinktanks find quixotic if not sociopathic. Finally, the above quote presupposes the existence, somewhere in the world, of a political regime that pursued "ruthless neo-liberal reforms," a position that is debatable at best. On the research methods employed in *Armageddon Averted* see Anna Krylova, "Soviet Modernity: Stephen Kotkin and the Bolshevik Predicament," *Contemporary European History* 23, 2 (April 2014): 167-192. On neoliberalism's effect on the social see Gérard Duménil and Dominique Lévy, *Capital Resurgent: Roots of Neoliberal Revolution*, trans. Derek Jeffers (Cambridge, MA: Harvard University Press, 2004); Vicente Navarro, "Neoliberalism as a Class Ideology; Or, the Political Causes of the Growth of Inequalities," *International Journal of Health Services* 37, 1 (Jan. 2007): 47-62. Also see Quinn Slobodian, *Globalists: The End of Empire and the Birth of Neoliberalism* (Cambridge, MA: Harvard University Press, 2018). On the importance of privately funded thinktanks in advancing neoliberal ideology see MacLean, *Democracy in Chains*. On free market ideology as utopian the classic discussion is Karl Polanyi, *The Great Transformation: The Political and Economic Origins of Our Time* (Boston: Beacon Press, 2001 [1944]). On the limits of the implementation neo-liberal reforms see Paul Pierson, *Dismantling the Welfare State? Reagan, Thatcher, and the Politics of Retrenchment* (New York: Cambridge University Press, 1994).

[18] Douglass C. North, "Economic Performance through Time," *The American Historical Review* 84, 3 (June 1994): 359-368.

was not short lived. As Chris Miller has recently argued, Russia's reformers advocated for staple neoliberal policies such as balanced budgets, reduced inflation, and a market-based private sector throughout the 1990s.[19] Apparently, the most prominent features of flexible production – this time without the "socialist characteristics" – served the new economic regime quite well.[20] Even into the late 1990s, state officials continued to talk about "releasing" workers for the purposes of reassigning them to another job within the same organization.[21] The work attitudes of redundant workers soon to be released remained the subject of scholarly and public interest a full decade after the end of the Soviet period.[22] The practice of combining professions was so recognizable that it was sometimes satirized, as in a story published in *Krasnaia zvezda* in 1998 about a man in Orenburg Region who was sentenced to eight years in prison for "combining professions" during his stint as the ringleader of a gang of car thieves.[23] The practice of combining professions was common enough that it was regulated in the December 2001 Labor Code of the Russian Federation.[24] Written by a scholar of labor and social security law, an

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For a similar argument, but on a much broader scale see Ha-Joon Chang, *Bad Samaritans: The Myth of Free Trade and the Secret History of Capitalism* (New York: Bloomsbury Press, 2008).

[19] Chris Miller, *Putinomics: Power and Money in Resurgent Russia* (Chapel Hill: University of North Carolina Press, 2018), 20.

[20] On the establishment of Russian capitalism see Stephen F. Cohen, *Failed Crusade: America and the Tragedy of Post-communist Russia* (New York: WW Norton, 2000); Peter Reddaway and Dmitri Glinski, *The Tragedy of Russia's Reforms: Market Bolshevism against Society* (Washington, DC: U.S. Institute of Peace Press, 2001).

[21] "Vysvobozhdenie: osnovnaia i poriadok," *Moskovskaia pravda* (27 October 1999), 13.

[22] Aleksei Sedlov, "Vysvobozhdenie: Zhelaniia i vozmozhnosti," *Moskovskaia pravda* (24 January 2001), 3.

[23] Anatolii Poliakov, "V kontse nomera: Za "sovmeshchenie" professii – vosem' let," *Krasnaia zvezda* (26 February 1998), 4.

[24] *Trudovoi kodekz Rossiiskoi Federatsii (Priniat. Gosudarstvennoi Dumoi 21 dekabria 2001: Odobren Sovetom Federatsii 26 dekabria 2001)* (Moscow: Nauchnyi tsentr profsoiuzov, 2002), 78.

Likewise, it was mentioned in the 2007 revision. See Svetlana Savel'eva, "Oplata truda pri sovmeshchenii professii," *Ekonomika i zhinzn'* (26 May 2007), 21.

The related practices of combining professions and expanding service zones are also commonly discussed in the Russian press. See, for example, I. Materialov and D. Prokop'eva, "Sovmeshchenie rukovodiashchikh dolzhnostei," *Ekonomika i zhinzn'* (12 December 2008), 13.

analysis of this same legislature published the following year described the practice of releasing workers in terms that P. M. Sharov, Vera Slepykh, and B. I. Lur'e would have easily understood:

> …at present, enterprises are widely practicing performing work with a smaller number of employees by combining their professions and expanding service areas, with the establishment of additional payments to employees' salaries in accordance with the current legislation due to the resulting savings in the wage fund.[25]

All of this occurred in the context of a domestic political economy that even today owes its stability to state policies designed to prevent mass unemployment.[26]

What did change was how profits were used. If, during the Soviet period, profits financed real efforts to improve the lives of workers and their families, then in the immediate post-Soviet period they lined the pockets of the select group of ultra-elites – the so-called "oligarchs" – that emerged victorious following the chaotic, and violent, process of privatization.[27] Already by 1997, the wealth share of the top one percent of Russians was around thirty percent, a figure on par with the same group in the United States.[28] Under the oligarchs, wages and support for social services and cultural amenities collapsed. As the sociologist V. K. Lekashov wrote: "[d]uring the years of neoliberal transformation in Russia, one of the cruelest systems of exploitation of hired labor in the

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[25] L. N. Anisimov, *Trudovoi kodeks dlia novoi Rossii: O sotsial'nom partnerstve i trudovom dogovore: Pravovoi komentarii i ofitsial'nye dokumenty* (Moscow: Globus, 2002), 219.
[26] Stephen Crowley, *Putin's Labor Dilemma: Russian Politics between Stability and Stagnation* (Ithaca, NY: Cornell University Press, 2021).
[27] There is no shortage of literature on the oligarchs. For a history of the term see Hans-Henning Schröder, "El'tsin and the Oligarchs: The Role of Financial Groups in Russian Politics between 1993 and July 1998," *Europe-Asia Studies* 51, 6 (Sept. 1999): 957-988. Here, 981 fn. 1. Recent contributions include Karen Dawisha, *Putin's Kleptocracy: Who Owns Russia?* (New York: Simon & Schuster, 2014)

On violence in Russia in the 1990s see Valeriy V. Chervyakov, Vladimir M. Shkolnikov, William Alex Pridemore, and Martin McKee, "The Changing Nature of Murder in Russia," *Social Science & Medicine* 55, 10 (Nov. 2002): 1713-1724; Mark Galeotti, *The Vory: Russia's Super Mafia* (New Haven: Yale University Press, 2018).
[28] Filip Novokmet, Thomas Piketty, and Gabriel Zucman, "From Soviets to Oligarchs: Inequality and Property in Russia," *Journal of Economic Inequality* 16, 2 (2018): 189-223. Here, 220.

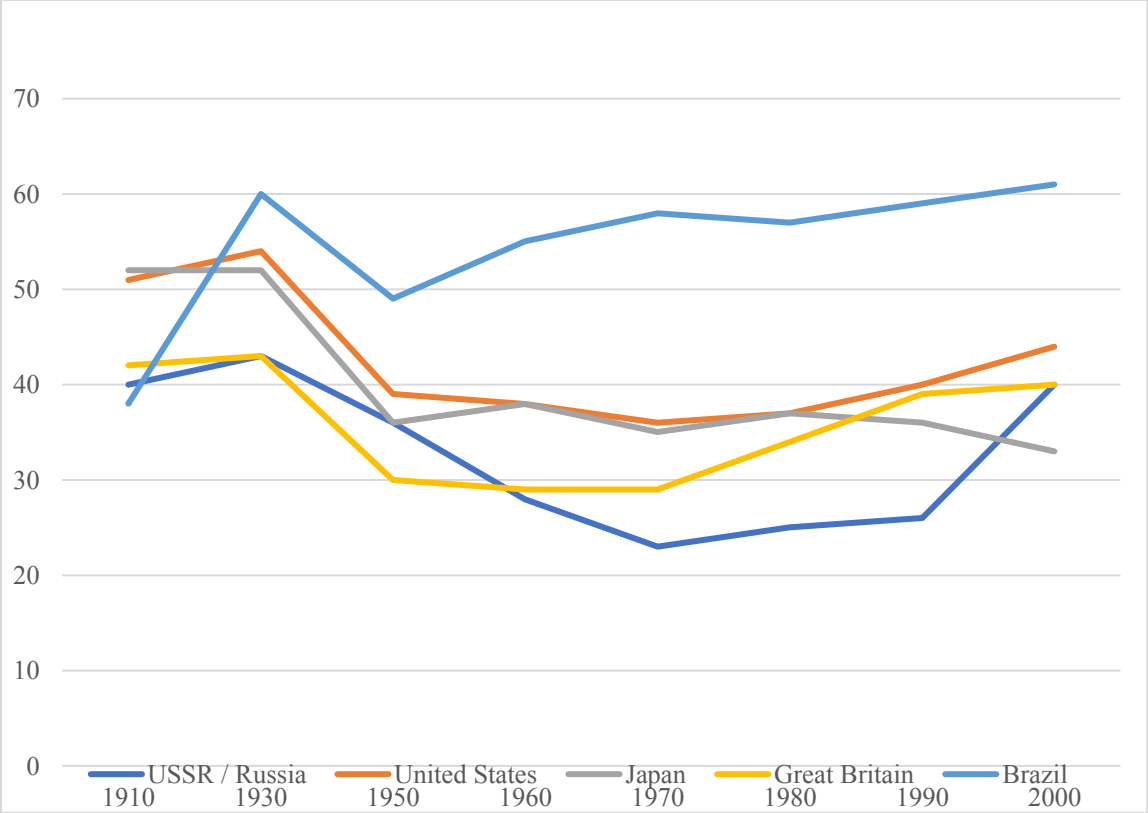

Figure 8.1
Changes in Gini Coefficient over time in Select Countries, 1910-2000
Source: Michail Moatsos, et. al, "Income Inequality since 1820," in *How Was Life: Global Well-Being since 1820*, eds. Jan Luiten van Zanden, et. al. (Paris: OECD, 2014), 199-215. Here, 206.

industrialized countries was formed." By the late 1990s, average wages dropped by 250 percent and the ratio of wages to GDP fell to between two and 2.5 times lower than in the West.[29] Between 1991 and 1998, table 8.4 shows, funding for health care dropped by thirty-three percent. The decline in support for education (forty-eight percent) and culture and the arts (fifty-four percent) was even more extreme. Predictably, there were serious ramifications. Across the same period, life expectancy declined by two years and the mortality rate in infectious and parasitic diseases grew by 158 percent. Cases of syphilis increased by almost thirty-three percent. Theater attendance plummeted from

[29] V. K. Levashov, "Moral'no-politicheskaia konsolidatsiia Rossiiskogo obshchestva v usloviiakh neoliberal'nykh transformatsii," *Sotsiologicheskie issledovatelia* 7 (July 2004): 27-46. Here, 30-31.

around 507 visits per 1,000 people to just 189. [30] Using a scale of 0 – for absolute equality – to 100 – for absolute inequality – the Gini coefficient is a metric used to measure wealth discrepancy in a given country. At 28.8, the Soviet Union's Gini coefficient in the early 1970s was the second lowest – behind Sweden – in the industrialized world.[31] By 1995, Russia's Gini coefficient had grown to 41.2, a mark worse than the 36.2 it registered just before the revolution of 1905.[32] Workers understood what was happening. In his majestic study of Russian working people in the 1990s and early 2000s, the sociologist B. I. Maksimov quotes one worker as saying about his relationship to management:

> The attitude towards a working person is disdainful. They absolutely do not give a damn about [us]. We thought they would invite us [to talk about transition], listen to us, and we would figure it out together. At least they would listen, and then we could hope for something. We are not demanding anything supernatural. But they did not want to deal with us. We are nothing! We are considered nothing![33]

Though he might not yet have possessed the language to describe it, Maksimov's interviewee had deduced for himself the process that Michael McFaul succinctly described as the "privatiz[ation]" of the state by Russia's "emerging capitalist class."[34] But was any of this unique? Figure 8.1 depicts trends in economic inequality in select countries during the twentieth century. By 2000, it shows, the Gini coefficients of the

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[30] Irina Rozhdestvenskaya and Sergei Shishkin, "Institutional Reform in the Sociocultural Sphere," in *The Economics of Russian Transition*, ed. Yegor Gaidar (Cambridge, MA: MIT Press, 2003), 585-615.
[31] Abram Bergson, "Income Inequality under Soviet Socialism," *Journal of Economic Literature* 22, 3 (Sept. 1984): 1052-1099. Here, 1070.
[32] Peter H. Lindert and Steven Nafziger, "Russian Inequality on the Eve of Revolution," *The Journal of Economic History* (Sept. 2014): 767-798. Here, 791.
[33] B. I. Maksimov, *Rabochie v reformiruemoi Rossii: 1990-e – nachalo 2000-kh* godov (St. Petersburg: Nauka, 2004), 226.
Also see Jeremy Morris, *Everyday Post-Socialism: Working-Class Communities in the Russian Margins* (London: Palgrave Macmillan, 2016).
[34] Michael McFaul, "Russia's 'Privatized' State as an Impediment to Democratic Consolidation, pt. 1," *Security Dialogue* 29, 2 (1998): 191-199. Here, 192-193.

United States, Russia, and Great Britain were on par with one another. Japan was not

Table 8.4
Public Expenditure on Sociocultural Sectors (in Real Terms), 1991-1998

	1991	1992	1993	1994	1995	1996	1997	1998
Health Care	100	80	108	98	72	71	81	67
Education	100	79	79	76	56	58	64	52
Culture, Arts, and Mass Media	100	91	81	87	63	54	60	46

*all figures in percentage of 1991 total
Source: Rozhdestvenskaya and Shishkin, "Institutional Reforms in the Sociocultural Sphere," 609.

much better though it was clearly headed in a different direction. To what degree might this development be understood as the fulfillment of the convergence thesis – albeit in a very different form than its initial adherents could have possibly imagined – some half a century after the fact? Did Lekashov, McFaul, and Maksimov's unnamed worker simply witness a transnational, if not global, transfer of wealth of which Russia was just one part?[35]

Anglophone scholars typically disparage the capital stock inherited by post-Soviet Russia. The sociologist Daniel Chirot remarked that, by the late 1980s, the Soviet Union had built "the world's most advanced late nineteenth century economy."[36] The economist and "free-market" ideologue Anders Åslund described Soviet factories as "obsolete…worthless smokestacks."[37] Others simply charged the Communist Party with

[35] See Thomas Piketty, *Capital in the Twenty-First Century*, trans. Arthur Goldhammer (Cambridge, MA: The Belkpan Press of Harvard University Press, 2014).
And on the intensification of this tendency since the late 2000s see Adam Tooze *Crashed: How a Decade of Financial Crises Changed the World* (London: Penguin, 2019).
[36] Daniel Chirot, "What Happened in Eastern Europe in 1989?," *Praxis International* 10/3-4 (Nov. 1990): 278-305. Here, 280.
[37] Anders Åslund, *How Capitalism was Built: The Transformation of Central and Eastern Europe, Russia, and Central Asia* (New York: Cambridge University Press, 1997), 143-144.

severe resource misallocation.[38] How, then, did the oligarchs amass such massive sums of capital? It is tempting to focus, as Kotkin does, on oil and gas.[39] But this tells only part of

Table 8.5
Oligarchs' Control and Ownership Concentration by Sectors

Sector	Oligarchs' Share of Sales*
Oil	72
Ferrous Metals	78
Automotive	71
Machinery	12
Nonferrous Metals	92
Milk / Meat	18 / 16
Pulp and Paper	30
Coal	48
Aluminum	80
Fertilizers	46
Pipes	55
Ore	73
Entire Economy	**39**

*denotes percentage of total sector
Source: Sergei Guriev and Andrei Rachinsky, "The Role of Oligarchs in Russian Capitalism," *Journal of Economic Perspectives* 19, 1 (Winter 2005): 131-150. Here, 137.

the story. Well into the mid-2000s, table 8.5 shows, a variety of important industries remained firmly under the control of the oligarchs. Oil, ore, and coal are all extractive industries; the latter two are also labor-intensive. But ferrous metals, automotive, machinery, fertilizers, pipes, and pulp and paper are neither. Additionally, the acquisition of other industries not represented on the table, such as chemicals and telecommunications, made hundreds of millions of dollars for a small coterie of investors.[40] Many sectors of the post-Soviet economy, in other words, proved profitable on the "free market." Have scholars undervalued the Soviet economy?

These questions point to the ongoing importance of the Soviet economic to

[38] Clifford G. Gaddy, *The Price of the Past: Russia's Struggle with the Legacy of a Militarized Economy* (Washington, DC: Brookings Institution Press, 1996).
[39] Kotkin, *Armageddon Averted*.
[40] Guriev and Rachinsky, "The Role of Oligarchs," 133.

understanding the history of the Soviet Union as well as contemporary Russia and the world. “Making Socialism Work” is not a story of inevitable decline and systematic failure. The Soviet economic system, it has demonstrated, was capable of change. Over the course of the late twentieth century, new rubrics – including profit, rate of profit, and labor productivity – became central to factory operations. A collection of previously scattered and generally neglected strategies for organizing labor – such as combining professions and releasing workers – were united to form a cohesive program to make socialism work. To compel workers to do their best, the provision of material incentives – from complex bonus systems to improved social services and cultural amenities – was improved. A massive effort was undertaken to provide workers with a basic education in economics but also to train them to work with more complex machinery. Industrial leaders did not act alone; social scientists played a crucial role in the development and implementation of reform. The Shchekino Method embodied these transformations.

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GATO: *Gosudarstvennyi arkhiv Tul'skoi oblasti*; State Archive of the Tula Region

RGAE: *Rossiisskii gosudarstvennyi arkhiv ekinomiki*; Russian State Archive of the Economy

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