



**The Donald W.  
Treadgold Papers**

Paper No. 5  
March 1996

*In Russian, East European  
and Central Asian Studies*

**Corporate Russia: Privatization  
and Prospects in the Oil and Gas Sector**

By Leslie Dienes

The Henry M. Jackson School of International Studies  
University of Washington  
1996

*About the author of this issue.....*

**Leslie Dienes** is Professor of Geography at the University of Kansas. He is the author of *Soviet Asia: Economic Development and National Policy Choices* and co-author of both *Energy and Economic Reform in the Former Soviet Union* and *The Soviet Energy System: Resource Use and Policies*. His articles have appeared in *Soviet Geography* and *Post-Soviet Economy* and have been published by the Joint Economic Committee for the Congress of the United States.

ISSN 1078-5639

© Jackson School of International Studies  
University of Washington, 1996.

Editor: Sabrina P. Ramet

Managing Editor: Letty Coffin

Business Manager: Marion Cook

Editorial Council: Herbert J. Ellison, James R. Felak, Judith Thornton,  
Daniel C. Waugh

*The Donald W. Treadgold Papers in Russian, East European and Central Asian Studies* provides a forum for the rapid dissemination of current scholarly research on the regions indicated by the title. Publications include papers from symposia and monographs that may be too long for most journals but too short to appear in book form. Subscriptions and special orders are available.

**Submissions** in the field of Russian, East European and Central Asian Studies are considered for publication. Articles should be of substantial length — approximately 40-100 pages, including endnotes. When submitting, please include an abstract and three copies of the paper. All transliteration should conform to Library of Congress rules. Submission on disk is requested upon acceptance. Submissions should be sent to the address below, with attention to Sabrina P. Ramet, editor.

**The Donald W. Treadgold Papers**  
Jackson School of International Studies  
Box 353650  
University of Washington  
Seattle, WA 98195-3650  
(206) 543-4852  
treadgld@u.washington.edu

## About this series

The *Donald W. Treadgold Papers* publication series was created to honor a great teacher and great scholar. Donald W. Treadgold was professor of history and international studies at the University of Washington from 1949 to 1993. During that time, he wrote seven books, one of which -- *Twentieth Century Russia* -- went into eight editions. He was twice editor of *Slavic Review*, the organ of the American Association for the Advancement of Slavic Studies, and received the AAASS Award for Distinguished Contributions to Slavic Studies, as well as the AAASS Award for Distinguished Service. Professor Treadgold molded several generations of Russian historians and contributed enormously to the field of Russian history. He was, in other ways as well, an inspiration to all who knew him.

The *Treadgold Papers* series was created in 1993, on the occasion of Professor Treadgold's retirement, on the initiative of Professor Daniel Waugh. Professor Treadgold passed away in December 1994. The series is dedicated to the memory of a great man, publishing papers in those areas that were close to his heart.

Sabrina P. Ramet  
Editor

# Corporate Russia: Privatization and Prospects in the Oil and Gas Sectors

By Leslie Dienes

---

The far reaching economic changes engulfing Russia can be evaluated from contrasting vantage points. Anders Aslund, Senior Economist at the Carnegie Endowment for International Peace, provides an evaluation from the perspective of Poland and Ukraine in a recent article for the Aspen Institute. Aslund takes note of the strikingly different transformations of the Polish and Russian economies and writes, “[i]n many regards, Russia seems to fail where Poland succeeded and *vice versa*.”<sup>1</sup> He goes on to detail the respective failures and successes of the two transformations. For the purpose of my paper, the most relevant contrast with the Polish (but also Czech and Hungarian) experience concerns the very different results of privatization. The development of small scale enterprises in Russia is hardly impressive when compared to the size of the country and its economy. (These enterprises are also under criminal control to a lamentable degree).<sup>2</sup> On the other hand, in Russia huge conglomerates emerged rapidly and in remarkable numbers, combined with a much swifter development of the capital market than in Poland.

Advocates of radical reforms should have been on guard. Even to casual students, it is obvious that Russian history has not been an evolutionary, organic development. Convulsions, whether from above or below, have been the nation’s experience, but seldom have they pushed the country onto a higher plane. Thus, in that experience Russia differs greatly from France, for example. Two native scholars, Yuri Lotman and Boris Uspenskii, recently contended that the dynamic fusion of opposites into a new higher state of social organization (the synthesis of Hegel’s tripartite model) has not been the norm of Russia’s history. Rather, an oscillation between opposite poles, between opposite states of being, has been the rule: “When the ‘new’ emerges, it mythically defames the ‘old,’ thus changing its valence (what was once positive is now negative), but also *assimilates it*” (my emphasis).<sup>3</sup> If this is true, the convulsive changes happening in Russia today may again be a manifestation of

that historical oscillation. Specifically, in this writer's view at least, the corporate "empires" that are emerging today as a result of the "astounding success of privatization," as described by western pundits, actually embody the structures of the now defamed but assimilated "old."

The Russian command economy, quasi-feudal in nature, has transformed itself into a "corporate" state. Its socialist patriarchal elite has been reconfigured. Some of both its least energetic members and those still committed ideologically to the past have doubtless fallen out. Yet, on the whole, the same class continues to exercise control today as the new owners of large chunks of the economic sphere. In the past, this elite exploited the state by virtue of its political-administrative position; it now exploits the wealth, which it did not create, through a proprietary relationship. Much of this elite consists of a parasitic rentier class, but part of it is energetic and entrepreneurial. The latter would be capable of significant wealth creation in a *Rechtsstaat*, in which sufficiently transparent legality reigns. However, the breakneck speed that destroyed the old controls precluded the possibility of transforming the country's mentality and of building institutions for legal controls that are respected and obeyed. As a result, the parasitic and entrepreneurial members of the new elite are both overwhelmingly corrupt. They are also lamentably criminalized, with professionals of the underworld themselves prominent within the class. Accordingly, time horizons, analyzed so wonderfully by Alexander Gerschenkron in the Russia of early capitalism,<sup>4</sup> are even shorter today, which rules out a commitment to the future.

This monograph has three aims: the first is to sketch in broad stokes the shift of the Russian oil and gas sector to the new corporate structure; the second is to assess whether corporatization has improved production prospects in these key industries; and the third is to appraise these prospects in their relationship to the economy as a whole and to the world beyond the borders of the Russian Federation.

## **The Emerging Structure of the Russian Oil and Gas Industries**

From exploration to the final consumer, the oil and gas industries comprise a long chain stretching through time and geographic space. Along this long chain, geological, economic, and

political risks compound themselves, while large front-end investments are rarely recouped in less than a decade. A proper timing and balance of resource inputs along that sequence is critical for the long-run profitability and health of the industry. Even the exploration sequence alone demands, as a result, appropriate proportions among reserve categories from speculative ones to those "on the shelf," i.e. readily available. Vertical integration has long been a logical strategy for companies to facilitate the shifting and reapportioning of resources along that chain and to provide the needed financial cushion and flexibility. In the entire world, in fact, only the contiguous United States, with its superior, intermeshing infrastructure, private ownership of subsoil resources, and well-defined legal system (treating drillers and lessors impartially) has spawned large numbers of small-scale, independent operators. The US, of course, is the home country of most of the vertically integrated major oil companies as well. During the last decade, however, the sun has set on most small operators even in the lower 48 states.<sup>5</sup>

The nature of the Soviet system obviously ruled out the independent operator. In addition, however, it also forestalled vertical integration among the functionally interrelated stages from exploration to the final consumer. The various ministries responsible for prospecting/exploration, production, transport, refining, etc., responded to very different success indicators. These did not mesh and often worked perversely at cross purposes, creating yawning gaps along the chain from prospecting to production.<sup>6</sup> Neither were horizontal linkages developed among organizations under the jurisdiction of different ministries, even when they were located in close geographic proximity and produced complementary products or services. Arild Moe and Valeriy Kryukov describe the system as follows: "The vertical structure of decision-making was paralleled by a similar financial structure .... The energy industries, like all other industries, obtained ... investment through a process that was characterized by commands, but also a fair amount of negotiation." This organizational structure generated behavior patterns that became deeply ingrained in the system. Specialists expect the continuation of such behavior to a significant degree even after the economic framework has changed.<sup>7</sup>

The breakup of the USSR brought with it the dissolution of the centralized, union-level energy ministries. Within the Russian

Federation, the economic and organizational upheavals of radical reforms led to the replacement of the three ministries for fuel extraction and that for oil refining with an overarching fuel ministry. This overarching body, however, no longer had the function of targeting output for the 32 regional production associations or guaranteeing inputs for them. The oil industry assumed a fluid, even chaotic structure.<sup>8</sup> The absence of a consistent, transparent body of petroleum legislation contributed, and still contributes, to organizational fluidity. Only in late 1992 did the outlines of the new structure begin to emerge and with it the goals of the federal government in Moscow.

The vertically integrated western "majors" served as examples for the restructuring of the Russian petroleum industry. In particular, the independently functioning, vertically linked, and financially interdependent units were to close the pernicious gaps in the chain of prospecting, reserve preparation, and production and were to mesh these activities much more smoothly. They were to eliminate the perverse discordance among the incentive structures of the exploration, development, and refining stages, a discordance that had plagued the Soviet oil industry when different ministries were responsible for each of these activities.<sup>9</sup> The model for the integrated companies, however, was more Norway's Statoil or British Petroleum than the giants of the United States. In addition, from the beginning, the federal government has intended to exert a large measure of influence over these companies through substantial ownership of stocks in the newly created holding companies. This influence, in fact, borders on control. The government owns the largest portion of the stocks in the holding companies, and the holding companies do the same with respect to their oil producing subsidiaries. These shares undisputedly are the controlling ones because one-fourth of the stocks are non-voting shares distributed to employees.<sup>10</sup> Ownership of stocks, by itself, need not obviate operational independence for the local subdivisions, however, as is demonstrated by a number of the western oil "majors." The long ingrained behavior pattern of the Soviet system, however, seems to drive the industry toward recentralization, even in the limited areas where local decision-making freedom was beginning to emerge.<sup>11</sup>

The size of many of the 32 production associations also enables them to continue as geographic monopolies, preventing others from establishing themselves in their regions. Reminiscent of

the old Soviet pattern, some strive to maintain dominance over public organizations and communal services (to be peeled off from the associations) through the control of shares in the new service companies. Maintaining dominance over infrastructure and services also provides a critical weapon for the "oil generals" against competition from new fields that foreign companies or Russian outsiders would propose to bring on line, or into production. Undeveloped reserves adjacent to the territories of these managers cannot be put on line without access to the existing infrastructure as jump off points, even when the legal rights to development have been acquired.<sup>12</sup>

The long, drawn out tug-of-war between the federal center and Russia's factious republics and regions also has a bearing on the way the Russian oil and gas industry is privatized and managed in the future. In turn, the transformation of administrative, semi-feudal control into one exercised through newly acquired ownership (essentially by the same elite) is greatly facilitated by that struggle. The unfinished legal framework is both the result of and an instrument in that still uncompleted drive for power.

The vast majority of Russia's oil and gas reserves are located on ethnic homelands of non-Russian nationalities, whose largely fictitious rights have been embodied in the dual administrative structure of the Russia Federation. To safeguard their equality regardless of numbers, the indigenous, non-Russian nationalities of the federation have been demanding greater economic and political rights for their homelands than those accorded to mere administrative units and *krays*. In addition to Chechnya, which had declared independence two years earlier, 20 of the 31 ethnic homelands claimed republican status in 1993. The new constitution affirms the unity of Russia as a constitutional and not a treaty federation, but accedes to preserving diversity among the "subjects of the Federation" (Articles I and 78). Seven republics have now signed power-sharing treaties with the Russian Federation in which they are located. A number of them (Tatarstan and Bashkortostan being the most important) have also adopted their own constitutions which flatly contradict the federal constitution on a number of key points regarding the sovereignty of laws, ownership of resources, and taxation. The conflict thus remains unresolved, and the contradictions between the ethnic and territorial models will take its toll on the Russian state system for a long time to come.<sup>13</sup>

In republics with dominant non-Russian nationalities, the indigenous people are pressing for ownership of natural resources. In the weaker autonomies with dominant Russian majorities, however, it is the Russian managerial elite which has learned to profit from the "ethnic card." In 1992, for example, Yamalo-Nenets *Okrug* (far and away the largest gas producing region in Russia) withdrew from the jurisdiction of Tiumen' *Oblast* in which it is located. Khanty-Mansi *Okrug*, the largest oil producer, has not withdrawn *de jure*, but it has acquired *de facto* autonomy from Tiumen' authorities. These *okrugs*, in which the indigenous nationalities form only a tiny fraction of the population, have gained real executive power with respect to the pace and conditions of resource development, and even with respect to agreements with foreign companies. Obviously, this serves the purpose of the oil generals, who can dominate the economy and administration of sparsely populated Khanty-Mansi *Okrug* to a far greater extent than those of Tiumen' *Oblast* as a whole. That dominance is far greater still for Gazprom, the Russian gas monopoly, in Yamalo-Nenets *Okrug*. Given the asymmetry in the Russian Federation (ethnic versus mere administrative units), the increased privileges gained by the ethnic autonomies *vis-à-vis* the *oblasts* and *krais* in which they are located also enhances their position *vis-à-vis* Moscow as well.<sup>14</sup> Perhaps the greatest benefit from playing the ethnic card, however, is gained from the privatization process. It is certainly the most egregious way the *nomenklatura* and managerial elite have reconfigured the instruments of power, which they continue to exercise.

### **Privatization or "Kleptostroika"? From Feudal to Corporate Control**

The maelstrom of the just completed privatization process in Russia was certainly astounding though, in my view, hardly an astounding success. The headlong, haphazard process was undertaken with neither economic efficiency and rationality, nor social and geographic harmony in mind. Its purpose was to bury, once and for all, the centralized command system. Anatolii Chubais, former deputy minister in charge of privatization, was explicit on this point in the course of an interview: "This is not an economics program; it is a political program. It is 5 percent economics and 95

percent politics.”<sup>15</sup> Indeed, according to *Novaia ezhednevnaia gazeta*, government revenues from the privatization program amounted to only one-tenth of the planned figure as of November 1994. A research project embracing 390 manufacturing firms concluded that in more than half of the enterprises, insiders obtained, on the average, 80 percent of all the shares. Insiders became majority shareholders in 95 percent of the firms. In most cases, outsiders who claim enterprise shares from vouchers bought up from individual citizens bring no investment to the enterprise yet will hold a claim on any of its future profit. Such vouchers were usually obtained at bargain basement prices by speculators, since the average Russian has no access to information on the financial prospect of privatizing firms.<sup>16</sup>

The assault on the “pyramids of Communism” destroyed only the centralized Communist state, which was already moribund. The pyramids remain. An *Interfax* report notes that “most privatized enterprises now ... are in the control of poorly organized shareholders/members of work collectives, management, and people placed on local bodies of government.”<sup>17</sup> It is with management and local governments where command and decision-making in such cases reside, and this is doubly so in the oil and gas industries. At the end of voucher privatization, the government proposes to limit the rights and privileges of work-councils in order to concentrate revenues and increase the attraction of privatized firms to investors. Yet, the secondary markets for the trade of shares are very poorly developed (only a few dozen stock markets exist), and Russia has yet to pass a law on securities.<sup>18</sup> According to one observer, “the trading of shares [did] inevitably spill out onto the streets ... in wild forms.”<sup>19</sup> As predicted by that source, some people snatched and ran, others felt deceived, and hardly anyone felt secure. In August 1995, Yeltsin appointed Georgii Rogozin, deputy chief of Aleksander Korzhakov’s Presidential Security Service, to Russia’s Financial and Stock Communications Commission, clearly increasing his personal control, as well as the influence of suspicious conservatives like these presidential aides, over this body.<sup>20</sup>

The Washington research and forecasting firm PlanEcon’s claim that “the percentage of the Russian population which holds equity investment is now one of the highest in the world” is, at the very least, open to question.<sup>21</sup> One East European source suggests that only about 5-6 million persons ended up having shares in the

country's assets. The rest of the 40 million voucher holders were swindled out of their possessions by a variety of shady deals or outright fraud.<sup>22</sup> According to a senior member of Russia's Central Bank, various pyramid schemes swindled the public out of 5 trillion rubles, very roughly amounting to one-tenth of the total value of Russian firms.<sup>23</sup> The fact that "in only 20 percent of the regions did the number of vouchers correspond to the fixed assets to be purchased ... [guaranteed] ... very high profits ... for speculators on the price differences of vouchers between markets," even when the vouchers were bought and sold entirely legally.<sup>24</sup> In a summary of data regarding 11,200 voucher check auctions held in the first four months of 1994, PlanEcon, in fact, admits that "open sources provided information on only about 20 percent of the auctions ... and completeness of data was achieved in only 10 percent of the cases."<sup>25</sup> It is not difficult to divine the ultimate beneficiaries of the headlong process. One out of every two investment funds, the financial intermediaries collecting vouchers from citizens in exchange for claims on a fund's shares, used only a paltry 5 percent of the vouchers for purchasing assets. The bulk of the vouchers ended up in the hands of former industrial and regional administrators and work collectives, with top management clearly in charge.<sup>26</sup>

Most dangerous of all, many Russians have become convinced that western financial corporations are gaining control of the country's most profitable industries through third parties at bargain basement prices (see below on the valuation of assets). Indeed, a journalist at *The Moscow Times* notes that western investors have come to dominate trade in Russia's nascent equity market and that the country's largest voucher investment fund frequently buys and sells stocks for third parties.<sup>27</sup> Viktor Iliukhin, head of the Security Committee of the Russian State Duma, reported to parliament that foreign companies have already purchased a significant part of the stocks of Russian firms.<sup>28</sup> The linking of international financial groups (such as Morgan Greenfeld, CS First Boston, and the Overseas Private Investment Corporation) to the privatization blitz via voucher distribution, then a closed, insiders auction, has fueled suspicion from both the liberal and nationalist sides. Russia's security services have accused western investors of subverting the economy. Even the radically liberal newspaper *Moskovskii komsomolets* mounted a sharp attack against the architect of privatization, Chubais, claiming that the second stage of

privatization had been specifically designed by western experts to undermine the Russian economy.<sup>29</sup>

Resistance to foreign acquisitions of Russian assets, especially mineral resources and land, at low book value has risen sharply lately from the whole range of the political spectrum, as well as from Russian entrepreneurs. Such views have also been voiced to the author personally by impeccably liberal Russian visitors.<sup>30</sup> In October 1994, Nikolai Astaf'yev, chairman of the Russian State Duma's Natural Resource Committee, stated forcefully that changes in the amendments to the Law on Underground Resources (to be submitted on 21 October for its second reading) would put "a serious barrier in the way of efforts to turn Russia into a raw material appendage to developed countries, something that emerges as an ever more distinct threat."<sup>31</sup> Similarly sharp criticism was mounted by Sergei Glazyev, the powerful chairman of the Duma's Committee on Economic Policy. Yeltsin himself had to deny a government *volte face* on privatization and then remove the new chief in charge of that process following a highly controversial statement.<sup>32</sup> Insensitivity on the part of the western press can only feed Russian paranoia. "Psst! Want to Buy a Country?" blares one headline in the influential *The Economist*.<sup>33</sup>

The excessively low valuation of assets and the frequency of closed auctions represent the most notorious features of the privatization blitz. It is through these attributes that liberals, conservatives, and nationalists alike can link the threat of a foreign and criminal takeover of Russia's resources with managerial-*nomenklatura* acquisition of property rights. The privatization of the Russian oil and gas industries provides particularly egregious examples of these controversial features. *The Economist* reports that "the book value of the 14,000 privatized enterprises was calculated once, in January 1992, and has not been changed since, even though Russian prices have risen by 10,550 percent in the intervening period;" it is this book value that "is ... the basis for the auctions."<sup>34</sup> Book values in the newly privatized energy companies are set especially low. Asset valuations for tobacco companies per unit of yearly production, for example, are 2.3 times greater in North America than in Russia; for companies in telecommunications they are 23 times greater. However, for North American oil companies such valuations surpass those in Russia 42 times and for electric power companies 165 times. On the basis of equal heat content,

asset values per unit of output for Gazprom (with 95 percent of Russia's gas production) were set somewhat higher but still negligible when compared to their western equivalents. In the spring of 1994, the economic worth of enterprise capital per ton of oil equivalent produced was appraised at a mere \$1.25 for oil and \$1.90 for gas. Per barrel of reserves, rather than output, the undervaluation of assets appears even more glaring.<sup>35</sup>

Of course, financial markets do not and should not value assets in Russia on a comparable basis because valuation is properly related to the political and institutional environment in which future activity will be carried out. But the contrary claim that there need be no relationship between Russia's energy or other assets to similar ones abroad can lead to absurdity. In 1995, Russia's revenues from exports beyond the CIS alone exceeded the book value of the country's aggregate industrial assets at the start of privatization.<sup>36</sup>

Morris Adelman's remark in a letter to *The Economist*<sup>37</sup> does not change the conclusion that the low valuation of reserves hugely facilitates the transformation of the *nomenklatura* and managerial ruling class into real owners of the country's most important assets. Adelman argues that Lukoil's reserves are depleted 2.8 times more slowly than those of Shell, and "therein lies the difference in value between Lukoil and Shell," a difference especially great if a 15 percent rather than a 10 percent discount rate is used in view of the present capital scarcity. Adelman's economic rationale for depleting Lukoil's reserves much more quickly (those of Shell's will be sold in 10.4 years at present depletion rates) may be applicable in the spaceless world of academic economics devoid of political and cultural values. In Russia, however, such rates of withdrawal, with much of the gains accruing to foreign multinationals, would be political dynamite. In addition, Adelman ignores the fact that Shell's reserves refer to an appreciably stricter category than those of Lukoil's.<sup>38</sup> A doubling of Russian oil flow from its existing reserves is impossible in this decade; output in 1995 was only 296 million. Even a decade hence, a 450 million tons extraction level is a very optimistic figure.<sup>39</sup> However, were it feasible for the major Russian oil companies to double their extraction rates in the next 4-5 years (and thus approach those of Shell's more closely), the impact of that volume on the world market, combined with Iraq's certain return as a major exporter, is anybody's guess.

In the oil industry, 38 percent of the shares will remain state-

owned property for awhile, and only one-quarter of the shares of the individual production enterprises have been distributed to employees as non-voting shares.<sup>40</sup> The government, too, intends to sell some of its shares later, but in the immediate future little more than a third of the total shares will be available for investors. I have no information on how open or restricted the auctions for specific firms will be. One source states that, as of March 1994, fully closed auctions have been prepared only for the oil complex, which implies that it has not been a rarity in that industry. At any rate, the top management in each oil producing association was provided with 5 percent of the shares at extremely preferential rates.<sup>41</sup> It seems evident that, in addition to the government, the oil generals will exercise a very large measure of control and enjoy windfall revenues from the privatization process.<sup>42</sup> The regional concentration is equally apparent. Very roughly, Tiumen' *Oblast* holds 45 percent of the fixed capital in the oil extraction industry. Since up to 30 percent of all shares will be distributed to managers and employees, this represents an enormous geographic concentration of wealth as well.

In the case of natural gas, the data are published and emphatically support my argument about the ultimate goal of privatization. The state corporation, Gazprom, is essentially synonymous with the Russian gas industry since it monopolizes 95 percent of the country's gas output. That corporation began its so-called privatization process in the spring of 1993. The government of the Russian Federation has retained 40 percent ownership of aggregate stocks, while Gazprom itself is holding back one-tenth of the shares for later disposition. Prime Minister Viktor Chernomyrdin, who was for many years chief of Gazprom, is reported to hold a large stake in the gas monopoly. Some even claim that it was simply his undoubtedly large stake that has made Chernomyrdin a reformer.<sup>43</sup> The remaining half of the total number of shares has been dealt with as follows: 15 percent was distributed among workers of the gas industry while almost 35 percent was sold at a giveaway price exclusively to inhabitants of *oblasts* and republics in proportion to the value of Gazprom's assets on their territories.<sup>44</sup> Given the sparse population in regions where Gazprom's most valuable assets lie, all but a small portion of Russia's citizens were effectively excluded from bidding even for the auctionable minority of the shares, representing 28.7 percent of Gazprom's capital.

The regionally based scheme of closed auctions leads to tremendous distortions in access to the shares. It also provides the cover of legitimacy to misappropriation and fraud on a colossal scale. Not counting the stocks distributed to Gazprom's employees, the 3,156,000 persons living in Tiumen' *Oblast* were offered one-quarter of all the 68 million shares, with an additional 5.7 percent offered to the less than half million living in Yamalo-Nenets *Okrug*. On Anatolii Chubais' own instruction, the indigenous people of the area were to receive stocks (worth 0.1 percent of Gazprom's assets) free, but would relinquish them for three years to the management of the newly formed association "Yamal for Future Generations" for later redistribution. All dividends during that time will be kept in closed personal accounts for Yamal natives by the management of the association that so far answers to no overseeing or regulatory body.<sup>45</sup>

The geographic distortions of access are conspicuous when the available shares are juxtaposed with population. Each inhabitant of Tiumen' has access to 73-83 times as many shares in Gazprom than an inhabitant of Moscow City and *Oblast* combined or St. Petersburg and Leningrad *Oblast* combined has access to. (For the cities alone the discrepancy is 600-800 fold). Citizens in Tiumen' *Oblast* were to be offered 10 times more shares than those living in Russia's densely populated Central Black Earth Region, even though that region is well served by pipelines and therefore has a good portion of Gazprom's assets. The territory east of the Kuzbas, with 12 percent of Russia's population, is entirely excluded from the auctions.<sup>46</sup> Gazprom is also resisting giving up any control in the second stage of privatization that involves the trading of shares for cash payment. Domestic sellers are first obliged to offer their shares for a buy-back to the corporation at book value. The board refuses to recognize any transactions in its shares even by domestic investors if it perceives such deals as not fully congruent with its interests. This looks insane in terms of free market principles, even to *Izvestiia*. Foreigners will be permitted to purchase only 9 percent of the shares and only after written consent from Gazprom's board of directors.<sup>47</sup>

The new system being formed is emerging in what Stephen Rosefielde calls a "cauldron of ... struggle for economic power. Politicians, bureaucrats, managers, entrepreneurs, trade unions, collective farm executives, and peasants all are striving to seize assets and reshape the system in their own interest."<sup>48</sup> Without much exaggeration, Rosefielde has dubbed the process "*kleptostroika*."

Despite serious obsolescence and decay, the oil and gas sector still concentrates the finest assets of the Russian Federation. Those connected with it, therefore, have the most to gain from overt and covert appropriation and are the most tempted. The emerging new order, in which semi-feudal power of the socialist pyramids is converted into power by ownership, is taking shape in a still chaotic and uncertain legal environment. This environment is further degraded by the widespread participation of organized crime in legitimate endeavors which disorders economic behavior.<sup>49</sup> A large number of former KGB officers have also gone into private business, creating an octopus-like informal network interpenetrating government and financial circles and the shadow economy. Especially powerful tentacles reach into sectors with exportable commodities such as oil, petroleum products, metals, and weapons. Yet the new corporate Russian is insecure. Current owners, therefore, tend to consume their assets, for they have little incentive for wealth creation. The economic transformation, therefore, has not moved onto a higher plane. As in the Lotman-Uspenskii cultural model (endnote 3), the new is simply assimilating the defamed old.

The oil and gas industries also present a clear example of the unsettled legal environment that facilitates the reconfiguration of power and is so conducive for *kleptostroika*. Assorted government commissions and experts, aided by western consultants, have been working for more than two years to draft a law on oil and gas. Fundamental cleavages are manifest in the long and still unfinished struggle to produce such a law. Kryukov and Moe identified these as conceptual and geographical. The first cleavage concerns the degree of integration (and monopolization) versus competition; the second concerns the degree of regulatory and revenue sharing rights of the federal versus the republican/regional governments.<sup>50</sup> An earlier umbrella law, the Law of Underground Resources, has already introduced the principle of payment for the use of mineral reserves and that of competitive tender. The acceptance of these economic tenets was a radical departure from socialist days when natural resources were regarded as free gifts to labor. The utility of these principles in the restructuring of the oil and gas industries towards greater competition and rational management, however, is vitiated by dual yet indeterminate ownership and control by both the federal and regional governments. The division of revenues from taxes, license fees, and bonuses and the export of oil also remain unsettled between

the federal government, the republics, and the provinces. Oil and gas producing republics and provinces have formed an interregional association demanding a larger share of the "petroleum pie."<sup>51</sup>

In a functioning market economy, windfall profits and excess revenues earned by rich natural resources (either because of inherent quality *à la* David Ricardo or because of advantageous location) are siphoned off through a system of rent payments. Three years after the beginning of its economic transformation, Russia still lacks such rent payments. It lacks them precisely because Moscow and the republics to this day cannot configure the nature and limits of shared resource ownership. Export duties, therefore, remain the primary means of siphoning off excess profits resulting from the long-standing difference between domestic and world prices. Export taxes and sales comprised more than 21 percent of all government revenues, including those off-budget, in 1994. Their share rises to two-fifths of the total when the largely off-budget social insurance and pension payments are excluded.<sup>52</sup> At no time since the beginning of the reforms have domestic prices approached world prices by more than two-thirds at prevailing exchange rates, given the ruble's sharp decline and the wide margins between exchange rates and purchasing power parity. In most months, exporters could earn more than twice as much for selling beyond the borders of the former USSR as inside Russia, even when domestic consumers were able to pay for supplies with no delay.

Dual ownership may have prevented recentralization by Moscow, but it occurred at the price of legal uncertainties and increased scope for graft and local misappropriation. As soon as he became head of the Ministry of Fuel and Energy in 1992, Chernomyrdin began an active campaign to obstruct foreign investment, especially equity ownership, in the oil and gas industries. As prime minister, he has continued this protectionist policy to this day. Accordingly, various drafts of the Law on Oil and Gas did not contain the provision about the joint management of reserves by Moscow and the regional governments.<sup>53</sup> Regional authorities, however, successfully prevented its introduction to parliament for many months. When the draft was introduced in early June 1994, with the federal government claiming exclusive rights over the terms for prospecting, exploration, and production, as well as transport and storage, the State Duma succeeded in eliminating the respective clauses. According to Fuel and Energy Minister Yuri Shafranik, "the

removal of those articles from the draft [was] another necessary compromise.” Thus, the overarching Law on Mineral Wealth explicitly retains the principle of “two keys.” That means that any decision to allocate blocks of prospective areas to a developer on the basis of auction or tender must be passed by both the authorized federal body and the legislative organ of the republic where such reserves are located.<sup>54</sup>

The struggle for central control, however, is not over yet. Nor have protectionist barriers against outsiders diminished very significantly. The latest draft of the oil and gas law does contain the long awaited clause on “preservation of terms,” i.e., the guarantee that later legislation will not worsen conditions for the license owner. It also grants investors the right to build and own pipelines in order to carry oil they produce to the point of delivery and export. However, some amendments restrict the rights of foreigners and even local producers. A federal fund of reserve oil and gas fields is to be formed which will include a list of deposits off limits to outside investors. Another clause will grant right of utilization without contest, even in fields put up for tender, “if relevant federal or provincial executive organs intercede on the aspirant’s behalf.” Such open-ended provisions can only invite abuse by the new overlords of “corporate Russia.” Another notorious amendment to the umbrella Law on Mineral Wealth (which the Law on Oil and Gas, in theory at least; cannot contradict) proposes that the extracted fuels and other minerals, not only those still in the ground, remain the property of the Russian Federation.<sup>55</sup> Few, if any, foreign companies will risk their capital if that amendment gets attached to the law. Nor will this amendment stimulate local Russian investors, whether with legitimate or ill-gotten moneys.

The increased power of the Nature Conservation Ministry (NCM) in the licensing procedure will also shift greater control from the regions to the Russian Federation. Until recently, only two signatures were required to obtain a mineral development license: that of the Russian Committee for Geology and Use of Mineral Wealth and that of the local administration. Today no mineral exploitation may begin without a third signature, that of the NCM. The NCM is also empowered to withdraw earlier licenses granted to both domestic and foreign companies. Much greater vigilance towards environmental degradation in Russia is long overdue. Yet the sweeping nature of that ministry’s new powers and its retroactive

nature will hardly stimulate competitive investment.<sup>56</sup>

In the spring of 1995, it was still unclear how far the government had loosened its grip on the export of energy under pressure from the International Monetary Fund and the World Bank. The struggle has been a lengthy one and, in my view, is hardly over yet. In 1993, the oil export offensive beyond the former USSR was accomplished by an expanded group of licensed agents, many incompetent and most of them corrupt. Frequently, they underreported the unit price and pocketed the difference, while their incentive to sell whenever they could contributed to plummeting oil prices and a soft market.<sup>57</sup> In his much publicized 23 May 1994 edict, Yeltsin annulled export quotas and licenses but then abruptly reversed himself, expressly banning outside competitors from the oil trade. After bitter debates in late 1994 and early 1995, the Russian government allegedly liberalized oil exports but tied pipeline access to volumes of production arbitrated by a government commission on a quarterly basis. Most recently, in March 1995, Moscow appeared to yield to the IMF and officially abolished the list of authorized exporters, again by presidential decree. At the same time, First Deputy Prime Minister Chubais averred that the rules of the game, including access to pipelines, now "will be clear, open, and the same for all."<sup>58</sup>

This has proved to be wishful thinking, as one Russian expert immediately stated.<sup>59</sup> Skeptics feared that the opening of the export pipeline to all would "set off a stampede of firms seeking foreign markets that could place an enormous strain on overstretched transport facilities." Such a stampede could also lead to accidents and spills.<sup>60</sup> Indeed, the list of authorized oil exporters was not abolished but rather expanded from 14 to 179, with two separate ministries acting as their "patrons" (the Ministry of Fuel and Energy and of Foreign Economic Relations). Now firms and agencies exporting oil in the framework of inter-governmental agreements will have preferential access to pipelines. Lobbying in mid-1995 was as intense as ever. On 1 July 1995, foreign companies, which had already met with difficulties in using export pipelines; found themselves facing newly raised export duties exceeding those imposed on their Russian counterparts.<sup>61</sup> Most recently, the Russian government has reportedly prepared the necessary documents to create a Federal Energy Commission, a superagency in charge of exploration licenses, access to pipelines, exports, and energy

prices.<sup>62</sup> In the case of natural gas, federal control over exports has not loosened due to Gazprom's exclusive grip over gas pipelines. As with other minerals, designated monopolies have affected the export of metals in the same fashion as oil in recent years.

Yet it must be noted that in the Russian context the devolution of power to regions and republics guarantees neither better static efficiency nor greater economic dynamism for the future. Nor does it guarantee a more competent managerial class and the necessary social cohesion. *Ceteris paribus*, local initiative should foster flexibility and competition, but such is not the case in Russia. More often than not, regional prerogatives to exploit (or to block) the development of reserves, participate in licensing, deal with foreign companies, and share revenues have been misused. A recent source reports, for example, that the start-up of the first joint venture to extract oil from a new field (i.e., not from well workover and re-drilling in long-producing deposits) is threatened by the neighboring regional association. Komineft', one of the largest oil trusts, not only raised the transit tariff arbitrarily for the joint venture, Aurora Borealis, but also declared its pipelines unprepared to take in the extra oil.<sup>63</sup> Similarly, the regional company Arkhangel'skgeologiiia has apparently scuttled the \$10-15 billion Timan-Pechora project between the Russian government and four western oil giants that was expected to be finalized in mid-December 1994 between Prime Minister Chernomyrdin and Vice President Gore. Arkhangel'skgeologiiia, already guaranteed a 15 percent share of the whole investment as a subcontractor, abruptly demanded a 50 percent equity stake in the project which would have left the international partners with less than one-quarter of the anticipated revenues.<sup>64</sup> Local authorities, in league with managers, are also using joint ventures to stow hard currency abroad.<sup>65</sup>

The 1994 regional elections favored the old *nomenklatura* and industrial managers.<sup>66</sup> Thirty percent of the new provincial legislators are bureaucrats from the old party structure and administration and up to one-third are factory managers in many provinces. Entrepreneurs fared badly. Internal privatization and the serious undervaluation of assets have provided ample opportunities for this elite to misappropriate wealth at a time when central supervision is weaker than it has been for many decades. In 1994, for example, Komineft' secretly distributed several million dollars worth of shares among their old stockholders, with the consequence that

international investors who had legally purchased their shares no longer know either the portion of the company they own or the true value of their holdings.<sup>67</sup> Another source revealed a similar scheme, involving the free distribution of 5 trillion rubles of shares (\$1.67 billion in November 1994) in 1,000 rouble units among present owners in proportion to their equity ownership. An unnamed, highly placed official of the Finance Ministry claimed the action was unlawful without the approval of the federal government.<sup>68</sup> The evidence suggests that "rent seeking and asset stripping" is as rampant far from Moscow as it is in the federal government. So far, corporate Russia is not a vehicle for wealth creation.

### **Winners and Losers among the Industrial Workforce**

After a brief reference to reserve, technological, and capital constraints, the rest of this monograph examines the anticipated impact of corporatization on the economic prospects of the gas and oil industries. To begin this section, however, I note that the manner in which privatization has been conducted will likely exacerbate social strain among Russia's blue collar labor force. Structural change in an economy always produces winners and losers and consequent stress. In today's Russia, however, winners and losers are produced in an environment of downward spiraling of all branches of industry, a crumbling capital stock, and active asset stripping. Workers in the oil and gas industries are clearly winners when compared to those in most other branches. Even those who may be worse off than in the 1980s are in a much better position than the average blue collar employee. In August 1994, wages in the oil and gas industries surpassed the mean industrial wage 2.4 and 3.6 times respectively and were higher still compared to the average in the economy as a whole.<sup>69</sup> Voucher distribution has now given oil and gas workers shares of real value. Barring catastrophic disintegration, oil and gas stocks should be worth appreciably more in the long run, notwithstanding the fall in share values during fall-winter 1994-1995 caused by the sharp decline of western capital flows into Russian portfolios following renewed uncertainties about the budget and privatization.<sup>70</sup> Indeed, by July 1995, prices of oil shares issued by Russian companies had soared on the Moscow stock exchange.<sup>71</sup>

By contrast, most Russian workers will never see any

dividends from the privatization of their loss-making or barely profitable factories. Those shares can only decline in value. Most employees lack any information about profitable firms and could not buy into them anyway because the shares of those enterprises fetch far higher prices in open auctions now. Nor can most investment funds pay any dividends; many have already folded.<sup>72</sup> In addition, the speed and manner of the process has greatly facilitated what Piotr Aven, former minister of foreign economic relations, has called “the symbiosis of business, crime, and power, [which is] the main ulcer eating away at the body of Russia’s economy.”<sup>73</sup> Along with 46 bankers and some 600 entrepreneurs, the chief CEO of Megionneftegaz, one of the most profitable oil production associations in Russia, was assassinated in 1994. The crime was interpreted by experts as the latest attempt by organized crime to take control of oil industry assets. Yet another oil executive has been murdered more recently.<sup>74</sup> The collapse of the MMM trading company, which became Russia’s largest trading firm in six months through a fraudulent pyramid scheme and skillful advertising, directly injured 10 million shareholders and caused panic among many more.<sup>75</sup> The experience, the most notorious but by no means unique, will not help confer legitimacy on the newly emerging corporate structures nor increase support for market transformation among the population at large. As an article in the *Financial Times* opines, “the reality may be that the transition [to a competitive market] is frozen.”<sup>76</sup>

At any event, voucher privatization has provided very little capital for building a competitive economy, which includes the enormous investment needs of the oil and gas industries. (Its proponents did not expect that either). Nor has the ongoing cash privatization provided more than a fraction of what was expected so far. According to Goskomstat (the State Statistical Commission), only 1,691 billion rubles of revenues were realized from privatization in the first eight months of 1995, when the yearly target was 8,000-9,000 billion rubles.<sup>77</sup> A western scholar has noted that in order to take over the accumulation function of a state, the top fifth of the population (the class that provides the great bulk of investment capital anywhere) would need to account for 60 percent of the aggregate household income. Four fifths of the population would have to accept an average real income drop of almost 40 percent relative to that of 1989, with catastrophic declines for those in the

bottom fifth.<sup>78</sup> According to one author, “[p]ushing income concentration beyond even the upper bound of the Latin American range will hardly win votes for Russian reformers.”<sup>79</sup> In fact, real wages had dropped by one-half (relative to 1987) by mid-1994, and a year later prices of most consumer goods reached nearly world levels.<sup>80</sup> At the same time, the capital accumulated or expropriated by the top 20 percent of the population has been mostly stashed away in foreign banks. All experts, whether Russian or western, in academic or financial circles, aver that capital flight from Russia exceeds several times the inflow of foreign funds. An average of \$10-\$15 billion annually is believed to have left the country illegally since early 1990, in addition to large legal outflows. Capital flight has continued during 1995 at a monthly rate of \$1-\$1.5 billion.<sup>81</sup> At the same time, foreign investment comprised less than 4 percent of the much reduced gross capital outlays even in the second half of 1994.<sup>82</sup>

## **Oil and Gas Prospects in Corporate Russia**

### **Physical/Technical Constraints: A Thumbnail Sketch**

Oil and gas supplies are subject to geological, economic, and political constraints everywhere, though in different combinations. Very uneven distribution of global reserves regarding quantity, quality, and accessibility also means extreme differences in production and delivery costs. After extraction begins, individual oil and gas fields are subject to worsening technical and economic conditions that demand rising inputs of capital and labor even with falling output. Over a large number of fields, however, the technical parameters worsen at highly differential rates, creating a wide band of indeterminacy for long run marginal costs. This band of indeterminacy widens even in countries with long functioning markets and the experience and tools such markets provide. In the Russia of today, no such economic rationality for long term capacity replacement is possible.<sup>83</sup>

Oil and gas exploitation is greatly influenced by past production practices, which in the former Soviet Union were subject to political and institutional demands rather than economic logic. During the 1980s, in particular, the so called “active” reserves were withdrawn at yearly rates of 5-7 percent and in some fields 10-12

percent. These high-flow reserves contributed 97-100 percent of all output and by 1994 some 60 percent of explored, producing reserves was in the declining stages of its life cycle. Russia's oil industry failed to ready itself for harder-to-recover reserves, which never contributed more than 5 percent to aggregate output, and much less in most years.<sup>84</sup> Senior specialists at the Fuel and Energy Ministry stated that proven plus probable reserves declined by 1.5 times from 1985 through 1992 and that the cost of preparing replacement capacity rose 10 fold.<sup>85</sup> Very few new deposits have been prepared for production since the late 1980s, and the average size of known fields in the reserve inventory has declined drastically.<sup>86</sup> As of 1991, only about 280 deposits had recoverable reserves exceeding 30 million tons, nearly all of them in western Siberia. All of these, plus a good number of smaller fields, would have to be delineated and developed in the present decade in order to compensate for the declining output experienced by most producing deposits today. Even such a prodigious effort could only stabilize extraction at a level of roughly 300 million tons per year, not much more than half of peak production during 1987-1988.<sup>87</sup>

Geological, geographical, and technological constraints (in part the wages of past sins) thus preclude returning to the peak production levels of the 1980s irrespective of how the economy is organized and managed. (In my view, this is not possible any time soon). Such constraints, however, would not prevent the rebuilding of a profitable oil industry at about present or slightly higher levels of extraction, after a moderate further dip in output. The question is whether the new corporate Russia will be able to utilize its still ample geological potential by marshaling, in an economically efficient fashion, domestic and global expertise, capital, and technology. I am convinced that it cannot, for economic as well as political reasons. Supply and demand-side issues are both involved as limiting factors on the economic side. Political factors affecting the prospects of the gas and oil industry embrace a still wider spectrum. The latter ranges from an historic mistrust of the West and fear of semi-colonial exploitation, to conflicts over national goals and power relations within the federal government as well as between Moscow and the provinces.

No reserve constraint as such exists for natural gas and, in theory, the reserve-production ratio could make possible yearly extraction levels over twice as large as today. But even a physical

ceiling for output, not to mention economic limits, depends on far more than the size of reserves relative to production. While Russia has almost 40 percent of the world's proven plus probable categories of gas reserves, growth in extraction beyond a very modest expansion will have to come from extreme geographical frontiers (mostly the Yamal Peninsula) which have no analogue in the world today. The lead time, or time needed for an investment to yield profit, the nature of some of the needed technology, and the environmental consequences of tackling that frontier are still unknown. Advance along this geographical frontier, however, will necessarily take place in large, discrete leaps, with each step taken or not taken heavily influencing output ceilings.

At the 1994 World Gas Conference in Milan, Gazprom diligently promoted its proposed pipeline scheme from the Yamal Peninsula to Europe through Belarus and Poland.<sup>88</sup> Not only would this pipeline stretch 5,000 km in length and traverse about 450 km of fragile, ice-saturated permafrost, but it would also have to cross approximately 75 km under the waters of Baydarskaya Bay well north of the Arctic Circle. Desperately wanting additional hard currency and an alternative gas export route that bypasses Ukraine, Gazprom has pushed for a totally unrealistic 1997 target date for the project. Yet the corporation estimates total cost as \$40 billion (very likely to be exceeded), while resolutely excluding the giant German distributor Ruhrgas from participation and insisting that the modest size German company Wintershall be the sole western partner.<sup>89</sup> Yamal matches in difficulty any of the world's great gas projects, none of which had such a short lead time. Given the cost and the physical obstacles, such a leap along the geographical frontier of gas extraction and transport appears impossible by 1997. Indeed, the influential paper *Segodnia* expects the Russian portion to be completed only in the late 1990s.<sup>90</sup>

### Prospects for Natural Gas: Market Constraints and Political Issues

If on the supply side Russian gas extraction is currently on a plateau, on the demand side it is on a downward slope. The decrease in consumption is a function of market saturation in locationally concentrated demand, on the one hand, and the economic depression, on the other. In Russia, power plants and industry accounted for 85 percent of gas demand in 1990 and 82 percent still in 1993; these

shares are roughly 5 percentage points higher still when only gas actually delivered is counted and self-consumption by the pipeline network is excluded from the total.<sup>91</sup> Natural gas today generates 65 percent of all electricity in Russia and more than 70 percent west of the Kuzbas.<sup>92</sup> In the 1990s, gas has displaced oil in virtually all dual fired power plants and other installations (i.e., those fueled with both oil products and gas). Further penetration of this fuel in industry, therefore, requires large scale replacement, reconstruction, and new facilities. Almost no such outlays have been made, however, in the past few years given the collapse of investment and the disintegration of economic ties among the successor states, even within Russia. The political uncertainties and erratically changing regulations impede such overhaul in the near future.

From 1990 through 1993, plunging industrial production and price increases brought about a roughly 9 percent drop in gas demand by power stations and industry in Russia alone; by the end of 1994 consumption in the two sectors seemed to have declined by 12 percent or 42 billion cubic meters.<sup>93</sup> (The use of gas in other states of the former USSR, where the price has now risen close to world levels, fell far more sharply). Economic rationality, however, would demand a pattern of gas use much closer to that of western countries, where the household-municipal sector is the largest consumer, since the economic benefits of gas in the household-municipal sector are much higher than in other uses. Yet in Soviet times the diffused benefits that accrued to the population could not be captured by the state for its own purpose. In addition, the construction of a giant interregional trunkline network tied up nearly all pipe steel capacity, resulting in a severe shortage of distribution lines. Therefore, the huge volumes of gas that became available from west Siberian fields in the late 1970s were directed to highly concentrated industrial consumers and large power stations.<sup>94</sup>

A very large increase in the length of high pressure distribution lines is a prerequisite for a significant shift in consumption patterns towards households. In the current state of the Russian economy this is far from assured, however, and a sanguine proposal submitted by the Russian Academy of Sciences appears entirely unrealistic.<sup>95</sup> Nor is a rational price level for households (which still pay only about a sixth of the industrial price) feasible politically or socially given the impoverishment of the bulk of the population. Despite the greatly subsidized price for the household-

municipal sector, the sector did increase its small share in total gas use, compensating somewhat for the plunge in both power station and industrial demand,<sup>96</sup> which is anticipated to continue to fall at least until the late 1990s.<sup>97</sup>

While the future for Russian gas is much brighter than for Russian oil, the corporatization of the industry will not enhance its prospects relative to the past. For much of the present decade, Gazprom will be able to coast along on the basis of past investment. With a labor force only 10-11 percent that of the oil industry, so far it has also been able to better take care of its workers. Yet these advantages will not last very much longer. As the gas industry matures, its requirements for capital replacement and new construction along still harsher environmental frontiers will rise significantly in the late 1990s. Indeed, the length of pipelines commissioned in the first half of 1994 barely reached a fifth of that common during the late 1980s for a six month period.<sup>98</sup> Despite increasingly severe capital constraints, however, Gazprom remains categorically opposed to equity participation by foreigners and bars even Russian firms from decision-making. It is determined to restrict foreign companies to supplies of specific equipment and technology; some of that, too, it would like delivered from factories built on Russian soil with the help of foreign capital. According to *Finansovye izvestiia*, "Gazprom does not refuse foreign help, but wants to direct it."<sup>99</sup>

Russian gas industry officials also have long harbored bitter resentment against the German downstream distributor Ruhrgas, which they claim has skimmed off most of the profit from gas sales. They are resolved to market all additional Russian gas to Western Europe directly through Gazprom's own subsidiaries.<sup>100</sup> Even such a liberal newspaper as *Segodnia* claims that the agreement of the Norwegian government to sell all production from its offshore Troll field to Ruhrgas for marketing (at the Eden terminal on the German coast) represents an "alliance" against Gazprom to keep it from selling more of its exports directly to West European consumers.<sup>101</sup> Gazprom is the world's largest gas corporation, monopolizing both production and transport, and is Prime Minister Chernomyrdin's previous domain. The demands of its corporate leaders carry even more weight in the Kremlin than those of western Siberia's oil generals, who also guard their crown jewels jealously from foreigners. Gazprom's leadership apparently hopes that within a few

years the prospects of unmet gas demand in Western and Central Europe in the early part of the next century will force international companies and western governments to reassess their cautious stance towards Russia's corporate giant.<sup>102</sup>

It is virtually certain that without direct participation of several multinationals on a grand scale, Yamal reserves will remain unavailable for export and domestic users in this decade. They could easily remain unavailable for some years into the next century. The environmental and technical difficulties faced on this peninsula and its offshore waters are much greater than those experienced by the gas industry anywhere in the world so far. The loops to carry 83 billion m<sup>3</sup> (three loops to Torzhok, with two continuing to the Polish border) are estimated to cost \$40 billion, including \$10-12 billion for production facilities on the Yamal Peninsula.<sup>103</sup> By comparison, required investment by all OPEC countries to meet anticipated growth in world demand by the year 2000 is assessed as \$108 billion. (The latter figure comes to less than three times the cost of the first leg of the Yamal project, but would provide about 7 times more energy in equal heat content).<sup>104</sup> Given such magnitudes and the fact that until 2000 domestic production and contracted imports in Western Europe are thought to be broadly in line, Gazprom will be unable to market Yamal gas before 2005 at the earliest, even with western participation.<sup>105</sup>

### Prospects for Oil: Economic and Political Issues

Corporatization will aid oil production and refining even less. To begin with, the oil industry is much older. The country's most prolific deposits peaked years ago and 80 percent of all fields under exploitation are in decline.<sup>106</sup> In 1992, all of Russia's producing oil reserves, with a well stock of about 148,000, supplied no more energy (in heat equivalent) than the country's two largest gas deposits, Urengoy and Yamburg, with a stock of only 1400-1500 wells.<sup>107</sup> Fixed capital in both oil extraction and refining is far more worn out than in the gas industry, and oil production alone requires perhaps ten times the amount of equipment required by gas extraction. The disintegration of economic ties between former republics and factories within Russia and the "non-payment crisis" have wreaked havoc on the capital stock of the oil industry. The latter was able to neither replace badly worn out equipment even at

producing wells, nor improve the output mix of refineries.

Nor do the new joint stock companies appear to have improved the efficiency of resource allocation. Eight integrated corporations were created to rationalize investment combination and sequencing from geological prospecting to the filling station. The flexibility that such vertical and horizontal integration provide, however, has been misused. Lukoil, Yukost', and the other joint stock companies have instead turned into conglomerates, sprouting an overgrowth of commercial banks, insurance companies, and similar commercial baggage that have nothing to do with their core business. (Lukoil in 1992-93 was involved in 72 joint ventures). For such conglomerates, the exploration and development of reserves, especially at new deposits, have become encumbrances. According to a senior researcher at the Russian Academy of Sciences, the idea of effective vertical integration "from wellhead to pump" has not been realized in Russia.<sup>108</sup> In mid-August 1995, a journalist claimed that in the tug-of-war between industrial, commercial, and regional interests, those thriving for more efficient vertical integration may be gaining the upper hand. The oil giant Lukoil outmaneuvered Perm'neft', acquiring its refinery assets and later the whole company, after undercutting its attempt at regional independence.<sup>109</sup>

The move can also mean something else, however. The political implications of these transfers, just as election campaigning gets underway, are only too obvious. In addition to Perm'neft', Lukoil acquired eight more regional oil firms through direct transfer by the Chernomyrdin government. These transfers augmented Lukoil's reserves by one-third and its production by 29 percent, pushing that company's share to over 17 percent of all Russian extraction. They also gave Lukoil (which is empowered to form a whole range of joint ventures with domestic and foreign firms) a virtual regional monopoly on exploration, development, processing, and transit routes from the upper Kama River to the Caspian Sea, excepting of course the Republics of Tatarstan and Bashkortostan. (The acquisition of the Kaliningrad oil company also added to that monopoly). Yeltsin had already signed a decree a few weeks before creating another Siberian oil giant from the government holding company Rosneft'. In addition, an obscure car dealing firm was allowed to purchase a fifth of all shares of Noyabr'neftegaz, one of the largest oil producers with access to the Omsk refinery. In exchange for assuming Noyabr'neftegaz's 605 billion ruble debt

from the Ministry of Finance, the well-connected car firm received an export license which permits it to pay off that debt in a mere two years. According to an article in *Izvestiia*, “[t]he smell of oilgate is in the air .... The fight for the fuel and energy complex is a fight for power!”<sup>110</sup>

As a result, in 1993 the volume of oil and gas-related construction and equipment installation reached only two-fifths of the volume of such work performed in 1988, with the oil industry the most severely affected. In 1994, exploratory drilling in the country as a whole fell by 53 percent compared to the previous year. Tiumen’ *Oblast*, Russia’s primary oil producer, experienced a more than 40 percent fall in aggregate investment in the first half of that year alone, compared to the same period of 1993. At the same time, most of the labor force engaged in oil and gas related construction work in the late 1980s disintegrated, with no replacement.<sup>111</sup> The commissioning of new housing was halved. Production associations, having lost their investment funds, unloaded their housing stock on the municipalities, retaining only the best 20 percent (with an additional 19 percent privatized). The municipalities, however, lack the means to build or to repair the dilapidated stock, which is in worse shape than the Russian average. A survey by the Siberian Branch of the Russian Academy of Sciences found that the significant outmigration from the Tiumen’ oil patch (evident since 1989) will increase another 5-7 percent by 1996.<sup>112</sup>

If anything, corporatization may make it harder to develop a coherent legal and financial framework with transparent rules for domestic, foreign, and joint companies. Adherence to such rules will be still more difficult. As noted above, the Law on Underground Resources and the still unadopted Law on Oil and Gas contain glaring contradictions and some notoriously restrictive clauses. Nor are they fully congruent with each other. *Kommersant daily* also reports that, for all practical purposes, the Russian government has voided the protection of Yeltsin’s September 1993 edict which grandfathered previous regulations shielding foreign investors (i.e., mandating that new laws cannot place new burdens or worsen the position of foreign capital).<sup>113</sup> Yet the President’s decree itself contradicts a set of laws on joint production and investment regimes that address the risks faced by investors in Russia, laws which themselves are subject to very different interpretations. Whether in these circumstances the passage of the Law on Oil and Gas, with

very few details released, would substantially improve the investment climate remains to be seen.<sup>114</sup>

Specialists now believe that only a transparent and very specific law on production sharing will safeguard large front-end investment by western companies and guarantee a stable tax regime for a foreseeable period. The product sharing law experienced delays and failed in the Federal Council (the upper house) by a large margin.<sup>115</sup> A reconciliation commission introduced highly restrictive amendments to the initial version, which will make the law completely unworkable in the form now passed by both houses of parliament. Most importantly, the new law states that any dispute arising in the framework of a product-sharing agreement must be resolved in a Russian court. The version finally passed also gives the state the right to unilaterally amend the terms of such agreements after they have been signed in case of drastic changes in market conditions.<sup>116</sup>

The latest draft of the Law on Oil and Gas also does not resolve the issue of joint ownership and jurisdiction over resources between Moscow and the republics. Yeltsin refused to sign that draft and the legal uncertainty drags on.<sup>117</sup> Nor is the valuation of past geological work, claimed by Russia as part of its investment in joint ventures with western consortia, near resolution. Within Russia alone, three state bodies would have to reach consensus on the value of such work, which does not promise a quick resolution. And western companies will hardly be reassured about the ambiguous language concerning the conversion of that work to dollar values.<sup>118</sup> Both newly privatized Russian companies and western firms are thus drawn into the ongoing struggle over licensing, development rights, and revenues among state bodies and between the center and the republics. On 3 August 1994, for example, Bashkortostan's government set a new excise tax on oil that is to be remitted to Moscow. The Bashkir action flatly contradicts the resolution of the federal government on a new excise tax. The federal tax quadrupled the per ton tax payment and would have bankrupted Bashneft' in short order. (Maintaining a slim 3 percent profit rate would have required a selling price of 110,000 rubles per ton, impossible for refineries to pay). Bashkortostan's new excise tax amounts to only 39 percent of that previously paid and a mere tenth now demanded by Moscow.<sup>119</sup>

## Exports versus Domestic Needs

Developments on the demand side will also strengthen command by the tiny rentier elite over its newly acquired wealth. A roughly 35 fold increase in oil prices from April 1992 through April 1994 have wrought a fundamental change in the Russian oil industry. For the first time since the late 1920s, output responds mainly to aggregate demand, or, more precisely, the ability to pay, rather than to production targets. Storage facilities are full, and Russian refineries in 1994 worked at only 70 percent capacity.<sup>120</sup> In the other states of the former USSR, demand virtually collapsed because by late 1993 consumers in these states had to pay much higher prices than those in Russia. The downward spiral of the economy in all the successor states thus depressed oil consumption even more severely than output.

The corporate elite is placed most advantageously to profit from the decline in domestic demand and the government's accordion-like shifts on export controls. It has already profited handsomely. Spurred by the collapsing exchange value of the ruble, exports beyond the former USSR have been a magnet for producers, regional bodies, and shady intermediate agents in the past three years and remain so today. The very large difference between domestic and world prices, shut-in capacity, and the porousness of Russia's borders with other former republics have provided an ideal breeding ground for corruption and theft, especially since these new states now have sovereignty over three-fifths of the port capacity of the defunct USSR.<sup>121</sup> The situation is also conducive to the efforts of criminal organizations to penetrate some sections of the Russian oil business. As mentioned earlier, the murder of the head of one of the most important oil producing associations in western Siberia, Megionneftegaz (and at least another oil company president since), has been widely interpreted as a manifestation of the effort of organized crime to take over parts of the oil industry.<sup>122</sup>

In mid-1994, a specialist at the Ministry of Economics allegedly remarked that in 1995 the country "will be forced to increase its crude oil exports [though not refinery products] to the 'far abroad' by 25-30 percent, whatever the world price."<sup>123</sup> To export, "whatever the world price," is surely an unusual position for any economist to take. Simple arithmetic also casts some doubt on predictions of more than modest increases in export volumes in the

future, as shown below. Meanwhile, as noted earlier, passions have flared over the anticipated impact of untrammelled oil exports demanded by the IMF and the World Bank, who threatened to withhold billions of promised loans if export controls were not scrapped. A sharp reduction in such loans would be disastrous. In the near term, however, Russian authorities seem to fear the resumption of illegal shipments abroad and another oil price surge hurting the domestic economy. When quotas were in force, the government also allocated to itself the largest export quota. Such direct sales, giving Moscow \$1.5 billion in government revenues in 1994, would be lost, without full assurance that they would be compensated for by the uniform enforcement of export taxes.<sup>124</sup>

IMF and World Bank officials and some Russian reformers argue that neither excessive exports nor an immediate price surge to world levels will materialize because port and pipeline capacities are already strained to the maximum. Officials of the pipeline monopoly Transneft', on the other hand, claim they could pump 50 percent more oil, but admit that shipments through Russian ports are indeed constrained.<sup>125</sup> And prices are soaring already. Oil prices jumped 59 percent in the first two months of 1995 and are expected to rise somewhat faster still later in the year. Yet the collapsing ruble so far has vitiated efforts to reach world prices soon. For crude oil, the world price in early 1996 still exceeded the domestic price more than two-fold, and by a not much smaller margin than in July 1994.<sup>126</sup> A sharp rise in exports would also leave domestic industries dependent on more marginal producers, making their position still more precarious.

No one can be certain what effects unhindered exports will have on the economy. The oil lobby itself is divided. It should profit immensely from untrammelled exports but fears chaos in the economy from resulting shortages. Nor is it sure about guarantees of equal access to pipelines. Free oil trade may spur a more rapid concentration of oil power as smaller firms seek mergers with larger ones to ensure such access. Given the pervasive corruption and the weakness of the government to guarantee a level playing field, the abolition of export quotas is not likely to put an end to the graft that permeates the oil business. In addition, real life may very well bring the return of the special export and customs privileges, as Igor Klyamkin, the Russian sociologist has noted.<sup>127</sup> At any rate, according to an article in *The Moscow Times*, "the major oil

companies are already at the hub of all the country's basic domestic conflicts: those between the military-industrial complex, the agricultural sector, and the energy sector; between the center and the regions; and between political forces which favor protectionism and those which support an open economy ... [R]elations between the oil companies and the government will remain tangled for the foreseeable future."<sup>128</sup>

This writer also doubts that much further diversion of fuels from the domestic economy for the sake of export will be politically feasible. According to Dan Van Atta, in the first two months of 1994, "Russian agriculture received only half as much gasoline as it did in the same period in 1993, and only about 45 percent as much diesel fuel. Dire fuel shortages ... would cripple both the planting and the reaping cycles." The significant decline in livestock numbers in the last few years means that the population has already shifted its diet from one relatively meat-rich (in part sustained by imported feed) to one mostly consisting of starches.<sup>129</sup> Russia's minister of the economy and speaker of the State Duma both issued dire warnings about alarming food shortages even before the 1995 grain harvest proved to be the lowest in 30 years.<sup>130</sup> Further deterioration in domestic food supplies and a reduction in the consumption of grain-based staples would carry much greater political risks. So would large scale wheat imports for human consumption (paid for by oil exports) while Russian agriculture is deprived of fuel.<sup>131</sup>

While the prices of many Russian products still deviate significantly from world prices, this is no longer true of food. The correlation coefficient between prices for food in the US and Russia, already high in early 1992, rose to 0.91. Non-food consumer goods are similarly losing out to imports. The import shares and foreign trade intensities of Russia are already high for such a large country. At world prices, several branches of the economy have ceased to be viable and will be unable to withstand foreign competition.<sup>132</sup> Much of the food industry and almost all synthetic material branches are highly energy intensive. For them the rapid move to world levels in energy costs will be a death knell. A perceptive German scholar, Volkhart Vincentz, who stresses that "liberalized trade is an indispensable tool to keep the incipient transformation on track," also notes the following:

In the West the [economic] rent derived from [upscale] con-

sumer goods helps to finance the often substantial R & D and marketing costs for those new products. In Russia, most of these rents are captured by foreign suppliers. Thus, this important source of income to finance the restructuring of consumer industries is not available ... Liberalized trade will not compensate for mistakes and omissions in the transformation strategy.<sup>133</sup>

The developmental strategy promoted for Russia by international financial institutions seems to rest with Russia's mineral wealth. Massive foreign direct investment, however, is a prerequisite for stable, long-term expansion in raw material exports. In the short run, sharp export increases will only draw down producing reserves without replacing them. As noted already, 60 percent of Russia's producing oil reserves and 80 percent of such fields are in decline.<sup>134</sup> Even for the gas industry, inadequate reserve replacement will become an issue beyond 2000 if the deposits on the Yamal Peninsula fail to come on line. For coal and a range of non-fuel minerals, tremendous overland distance from markets will frustrate competitiveness once transport rates, which were held artificially low for many decades, fully reflect costs. Once surplus stock of non-ferrous metals, accumulated as a result of the plunge in military and other heavy industries, are depleted, sharply rising production costs will also add to the FOB, or free-on-board, prices of non-fuel minerals that Russia is keen to export today.

More importantly, developmental experience based on mineral exports, even of oil and gas, has been highly equivocal. In Russia, as in a host of other countries, a developmental strategy focused heavily on mineral exports will create an extremely wealthy but narrow class of mineral barons with an equally shallow second layer of wealth attached to it. Linkages with the domestic economy and the ratchet effect on the masses of the country will be very limited. The political damage from the overwhelming interest of western capital in Russia's resource sector is even more damaging. That theme, stressed in this monograph and noted forcefully by Michael McFaul of the Carnegie Endowment already in 1994, is now moving onto center stage in Russian politics. With 78 percent of the very modest direct foreign investment funneled into the oil and gas sector, the conviction that the West is out to pillage Russia's national treasures and sees it chiefly as a raw materials appendage to the G-7

grows ever stronger. This seems to be confirmed by a corresponding western reluctance to invest in Russia's high technology industries.<sup>135</sup>

It is, therefore, difficult to see much additional diversion of petroleum from the Russian economy, notwithstanding hard currency needs and the deep economic depression that curtails domestic demand. Indeed, in the the first nine months of 1995 the volume of crude oil exports declined slightly even to states beyond the former USSR when compared to the same time period the year before. Exports of refinery products did grow, but all of that growth was achieved by diversion from the CIS states. (Price increases relative to the depressed levels of 1994, however, enabled Russia to increase revenues from crude oil and product exports to countries beyond the CIS by almost 11 percent and 20 percent respectively).<sup>136</sup>

Russia's oil output in 1995 was expected to drop to 306 million tons, even with the addition of gas condensates. Russia's own needs approximate 230 million tons of crude to be refined, according to Deputy Minister of Fuel and Energy Anatolii Shatalov;<sup>137</sup> the country actually used about 185 million tons of refinery products in 1994. With crude oil extraction (without condensates) in fact falling to a mere 296 million tons for 1995, however, even the total elimination of shipments to former republics would leave only 170-180 million tons for use in Russia itself, less than both Shatalov's approximation and the 1994 level. Equally important, export duties and the decline in the relative value of the dollar (in which global oil exports are denominated) have eroded the competitive position of Russian oil producers. The latter earned only an average of \$4-6 of profit per ton in the summer of 1995.<sup>138</sup> Unless export taxes are reduced (which would cut government revenues), a small percentage drop in the world price will wipe out that profit.

More cuts to the CIS should be expected, but the complete elimination of supplies will not be possible. Nor would that help Russia's oil producers any more and may actually hurt them. The new states are no longer as critical in the burgeoning liabilities to Russian energy producers as they were formerly, especially in the case of oil. Deep reduction in supplies and price hikes towards world levels have slashed the relative contribution of former republics to Russia's gross energy debt. On 1 August 1994, consumers in other CIS countries were responsible for only 12 percent of these arrears. Consumers in the three Baltic states added

another 4.6 percent to Russia's gross fuel-energy debt. Further price increases pushed the debt share of former republics to 19 percent one year later, but since that time apparently no further rise has occurred in that share.<sup>139</sup>

*Kommersant daily* recently published the changing level of accumulated debt of the CIS states to Russia, by individual energy sources, as given by the Fuel and Energy Ministry (the CIS states include all former republics except the Baltic states and Azerbaijan):<sup>140</sup>

**CIS Countries' Debt for Russian Fuel in Billion Rubles**  
Russian Fuel and Energy Ministry

Date	Natural Gas	Oil	Petroleum Products	Coal	Electricity	Total
1 Jan. 1993	1,187.1	345.8	26.65	16.0	87.0	1,662.55
1 Jan. 1994	1,517.9	393.4	26.84	27.8	11.71	1,977.65
1 Jan. 1995	8,065.9	348.9	20.92	45.1	598.93	9,079.35
1 Jun. 1995	14,418.7	288.9	15.05	32.4	1,603.90	16,358.95
1 Jul. 1995	12,556.9	304.9	2.67	43.73	1,701.51	14,610.00
1 Aug. 1995	11,791.7	304.0	2.75	27.73	1,789.30	13,915.48

The ministry's data clearly shows that the CIS's debt for oil and petroleum products reached a peak of approximately 400 billion rubles on 1 January 1994, then dropped sharply and has remained essentially unchanged since. The far larger cumulative debt for natural gas comprised 85-89 percent of all energy liabilities in the first six months of 1995. The gas debt of the CIS reached its peak in June 1995 and fell by 18 percent two months later. From January-November 1995, CIS energy imports from Russia declined in value for the first time compared to the same period the year before, notwithstanding the continued increase in unit price charged. There is little to gain from more energy cuts to former republics. Russia, in fact, may be losing the leverage such exports have represented in the past.<sup>141</sup>

Yuri Shafranik, minister of fuel and energy and himself from the west Siberian oil patch, declared in mid-1994 that for the near future Russia must accept furnishing these states with fuels, notwithstanding uncertain payment for such supplies. Finance Minister Vladimir Pankov has similarly stated that new government

credits to other CIS states have fallen to “very insubstantial levels” in 1995, while former Foreign Minister Andrei Kozyrev declared that such contributions are political instruments justifiable up to a point by Russia’s long term interests.<sup>142</sup> Russia must also consider larger economic-political issues, especially with respect to Ukraine and Belarus. Not counting the Baltic states, half of Russia’s trade turnover with former republics was still conducted with these two countries, even if aggregate shipments declined dramatically. An economic debacle in Ukraine would immediately affect Russia in incalculable ways. Moscow also seems to find that the *energy club*, administered at judicious doses and intervals, is proving to be a useful, persuasive tool both in the economic and political spheres.

The most telling proof that Moscow will continue to accept some degree of subsidies for Belarus and Ukraine lies in the price concession for fuel purchases extended into 1995. Among the six new governmental agreements signed with Belarus on 2 January 1995, one declares that the latter will be granted fuel deliveries at Russian domestic prices.<sup>143</sup> No settlement on Belarus’ nearly \$1 billion energy debt to Russia has yet been achieved, but Russia will certainly be able to press for more concessions, in addition to the ones already received, from the weaker partner in the military, political, and economic fields.<sup>144</sup> By early 1995, Ukraine owed Russia \$2.7 billion, of which unpaid bills to Gazprom comprised \$1.75 billion. The Russian gas monopoly has stopped deliveries for short periods in the past and reduced volumes significantly from pre-independent days. Yet Ukraine still paid only \$50 per 1,000 m<sup>3</sup> as 1994 ended, though the world price was \$70. Russia has offered to restructure the debt to permit Ukraine to save up to \$700 million, at least according to the major Moscow paper *Kommersant daily*.<sup>145</sup>

The drastic cuts in oil shipments to domestic and CIS consumers will likely have reached the limit of tolerance by the end of 1995, at least insofar as these cuts are accomplished in a reasonably orderly fashion. From January through July 1994, Russia refined only 104.3 million tons of crude, almost a fifth less than a year earlier.<sup>146</sup> At the same time, per capita consumption of liquid fuels in Russia is surprisingly low, given the size of the country and its climate, transport, and agricultural requirements. In 1993, the use of all liquid fuels per inhabitant equaled those of Venezuela and Iraq, surpassing that of Mexico by only 22 percent. Russia consumed 28 percent less motor gasoline per capita than Mexico and only half as

much as Venezuela. In Ukraine, consumption of liquid fuels per capita was less than half that in Mexico.<sup>147</sup> Given these facts, I find it difficult to accept that continued increases in oil exports at the expense of domestic industries and agriculture in Russia would be politically feasible. It would further weaken social support for the reforms as they are currently pursued. The volume of oil and refinery products shipped to former republics will be cut further, but not eliminated entirely. Gas exports beyond the former USSR, however, will still be aggressively pursued.

The contrast with non-ferrous metals is also instructive. Soaring metal exports in the early 1990s generated little domestic opposition because nearly all the increment has come out of accumulated stocks. The case of aluminum was the most publicized, but not unique. The collapse of military orders and the crisis in the aerospace and aviation industries led to the swelling of inventories. From 1989 through 1993, Russian shipments to world markets soared from 500,000 to some 1,600,000 tons. World prices collapsed and, under pressure from other producers, Russia was then forced to accept an agreement to cut back output by half a million tons (essentially all of it destined for export). In fact, Russia had to bear a full third of all global reduction agreed upon, though there are signs that it will not fully adhere to the accord.<sup>148</sup> With respect to Russian metals, western powers have remained unyielding to pleas and charges of protectionism, as became clear during Yeltsin's and Chernomyrdin's visit to the United States in late 1994. It is, therefore, resistance by other western states to open their markets that is generating bitter complaints on the Russian side.<sup>149</sup>

It is different with oil. No barriers exist in the industrial world against rising Russian petroleum exports. Indeed, importers welcome it as production capacity has tightened significantly in OPEC states, despite their increased share in world reserves in the past decade.<sup>150</sup> More oil on the market would help keep prices low. Russia's new giant oil corporations are also eager to ship as much beyond the former USSR as transport capacity allows. The oil generals, on the whole, are not receptive to equity investment by western companies or production sharing, especially in western Siberia. Hard currency earnings from exports, however, guarantee them critical equipment supplies, consumer goods for their workforce, and, invariably, a rise in revenues in their own bank accounts at home and abroad. Their power and prestige are

correspondingly enhanced.

The rest of Russia, on the other hand, is deeply divided about the wisdom of further expanding oil exports. In 1994, fuel exports by all agents brought in more than half of all export earnings for the Russian Federation, with metals and diamonds accounting for another 25 percent.<sup>151</sup> Nearly everyone recognizes that substantial oil exports are necessary. Yet the extremely high shares shipped abroad (which equal or surpass those in the Brezhnev years) in times of declining output and the severe deterioration of technical indicators for reserves and extraction are producing much anxiety. Many fear that the rapid draining of the remaining accessible, high flow reserves is a mistaken course, contributing marginally to low world prices. The critics include respected, though not disinterested, officers of independent conglomerates involved in petroleum production and trading (such as the Hermes Corporation), managers of heavy industries, the military-industrial and agricultural complexes, academic specialists, Slavophiles, and nationalists of almost every hue.<sup>152</sup>

The head of the Center of Presidential Programs also stated recently that the government would not encourage the sales of unprocessed crude oil. Yeltsin himself went on record in an open letter to Chernomyrdin expressing his anxiety about the extreme dominance of fuels and raw materials in the export structure. He declared that "lately the accent of export politics in the fuel-energy sector threatens the national interests."<sup>153</sup> Even the deputy minister of fuel and energy acknowledged much opposition to expanding oil shipment abroad, though he deems it necessary.<sup>154</sup> Critics fear a downward pressure on prices from the further rise of exports, a fear not unreasonable if such expansion coincides with Iraq's reentering the world market as a major supplier. In addition, manufacturers of petroleum equipment and chemicals for the oil complex charge that "Russian petrodollars are skimmed off by foreign firms on imports." These firms refuse to create employment in Russia itself, even when perfectly good and much cheaper supplies are available for them within the country.<sup>155</sup>

The strategy of focusing on raw material exports also has led to sharp criticism about the de-industrialization and "Kuwaitization" of the country. (The metaphor is not apt: given Russia's population of nearly 150 million, Brazil and Mexico are better comparisons, and in neither of these countries do resources provide export shares

nearly as high as in Russia). In this context, the textbook certainty of western economists of a monetarist and *laissez-faire* conviction that "... if the change in the economic system is carried out properly ... Russia's total exports will change towards larger exports of raw materials"<sup>156</sup> is surprising. Such statements ignore the political risks and bitter divisions the economic transformation has already engendered in the society. It feeds suspicion on both the right and the left, provides an easy target for xenophobes, and raises misgivings among a broad stratum of moderate intellectuals as well. It should also be recognized that Russia is not a Middle Eastern oil power. The country's aggregate discovered reserves are indeed very large and are estimated to be 6.5 billion tons (47-48 billion barrels), but half of these reserves belong to the so-called "hard-to-produce" class.<sup>157</sup> The share of "industrial reserves" (roughly comparable to the "proven plus probable" category in western classification) has declined by 1.5 times since 1985. Russia today has only 13-15 years of readily producible explored reserves.<sup>158</sup> Further expansion of exports in the immediate future will draw down these reserves even faster, while their replacement will demand much longer lead times.

## CONCLUSION

If you can look into the seeds of time,  
And say which grain will grow and which will not  
Speak then to me.

I began this monograph by citing three contemporary intellectual historians who observed that the "new" in Russian history has rarely emerged in an organic, evolutionary fashion. When it has emerged, it has tended "mythically to defame, and yet *assimilate*," the now-rejected "old." This research argues that the economic changes convulsing Russia since early 1992, especially the breakneck privatization of the last two years, has transformed a quasi-feudal command economy into a corporate state. Its socialist patriarchal elite has reconfigured itself, converting its administrative-managerial position into property rights. For many years, but especially from the Brezhnev to the Gorbachev eras, this elite had already been exercising those rights *de facto* to a very large degree. Now it has been able to convert them into *de jure* ownership. Nowhere is this more true than in the oil and gas industries. The latter, together with

parts of the non-ferrous metal industries and a few information monopolies, represent the most valuable portion of Russia's physical economic assets. Of the top 10 companies among the 500 largest just auctioned off, seven of the top ten are in the oil and gas business, one is the unified electric utility (covering most of Russia's inhabited territory), and one is Norilsk Nickel. Thirty of the largest 35 companies are engaged in the oil and gas business, with 27 in extraction.<sup>159</sup> The first stage of voucher privatization was typically an internal one, with managers and employees receiving 51 percent of all the shares and the state, in most cases, the third largest chunk. Russian sources also record the further illegal emission and free distribution of shares in both the Komi Republic and Siberia.

Extraordinarily low asset valuation characterized the entire privatization process. The largest 500 companies combined were valued at a mere \$7.3 billion, with almost half of these represented by the 10 largest mentioned above. Per employee, the assets of energy companies were assessed many times higher than those of manufacturing firms (even of successful exporters), but were still strikingly low compared to those in the US and elsewhere in comparable sectors. Internal privatization, however, clearly has conferred enormous riches on shareholders of energy companies already. It is true that western demand for Russian stocks collapsed in early 1995 due to threatening statements by the now departed Polevanov during his brief tenure as privatization chief, the Chechen war, and other signs of an increasing nationalistic shift in the government. Given their incredibly low asset valuation, however, the shares of oil and gas companies must eventually rise unless chaos overtakes the country. Most manufacturing firms will probably never be worth much to outside investors, but the shares of a few dozen must ultimately increase as well because it is unimaginable that Russia's entire economic production capacity would be worth no more than \$40-50 billion. The country exported \$40 billion beyond the former USSR in the first 9 months of 1995 alone.<sup>160</sup>

In an incisive article, Steven Rosefielde asks why "courageous entrepreneurship" has not been able to lift the Russian economy out of its current hyper-depression even though Soviet era managers have been reasonably competent, liberalized prices now produce the needed allocative signals, and current official policy enshrines initiative and private property. Rosefielde argues that the crux of the issue lies in the way the utility of the post-Soviet capital stock is viewed:

The outlook should ... be bright if the structure of effective de-

mand shifts gradually or technology is fungible ... [P]rospects are necessarily bleak if Soviet technology is infungible, demand for traditional goods is weak, [and] managers lack resources for retooling and retraining and the skills to master new challenges in product development, marketing, and finance.<sup>161</sup>

Should Russia's production potential for non-traded goods then be as deeply discounted as western advisors of shock therapy insist? Should it be valued solely according to its capacity to *produce goods of equivalent international worth* (my emphasis)?

In my view, the internal demand for the stream of functionally adequate goods that Russian industry has been able to turn out is far from weak, especially outside Moscow, St. Petersburg, and a few other cities. Their quality can be upgraded by gradual exposure to foreign competition and by employing moderate and selective protection. Complete liberalization of trade and investment were not achieved in Germany and Japan until almost five years following World War II, and currency controls existed longer still. It borders on the preposterous to expect the economic destruction and spontaneous rebirth of most of Russia's productive potential within a few short years, while what is valued by the world market is restricted almost entirely to oil, gas, and a few other commodities. And it was preposterous to believe that after the trauma of the USSR's disintegration and loss of superpower status Russian political conditions would be conducive to a *laissez-faire* transformation. Rosefielde, in fact, cogently argues for "harness[ing] Russia's productive assets more effectively either by restoring state orders through a massive integrated public work effort or by fostering a state-led reindustrialization program ... by various direct means."<sup>162</sup>

Many of Russia's new corporate elites, perhaps even a majority, comprise a parasitic rentier class. Yet, a significant portion is energetic and entrepreneurial enough to create real wealth in a *Rechtsstaat*. However, the rash and mechanistic application of shock therapy, which ignored political culture and historical legacy, has frayed the social fabric to the limits of tolerance. And the breakneck speed that destroyed old controls has so far left little time to build institutions or a sufficiently transparent legal framework that will be respected and obeyed. Even less has it been possible to internalize mutual respect and ethical behavior in business transactions. As a

result, the parasitic and entrepreneurial members of the new elite are both very corrupt, with professionals of organized crime prominent among them as well. Accordingly, time horizons are even shorter today than in the Russia of early capitalism, analyzed in Gerschenkron's essay.<sup>163</sup> A serious commitment to the future is thus ruled out. The small group that has access to Russia's mineral wealth and assets in the few industries with readily sellable products are custodians of the country's crown jewels. They are guarding these jewels jealously from foreign capital. Yet, on the whole, their stewardship has been no more effective than that of the corporate elite in general. Opportunities for self-enrichment, on the other hand, have been vastly greater, especially via the headlong privatization. The wealth to which they have access is also ample enough both to provide them with the needed political patronage and support network and to spin a coterie of clients and hangers-on.

The "starkly ideologized and empirically ungrounded version of free-market capitalism," to use Robert McIntyre's expression,<sup>164</sup> that the just completed, unbridled privatization and shock therapy represent was, in my view, a tragic misapplication to the Russian reality. The gigantic economic orgasm to which the country was subjected (but without the pleasure) may prove to be one of those historic convulsions which failed to put the country onto a higher plane. The convulsions of the past three years cannot be undone. Yet, while communism is gone (perhaps), the pyramids that communism built mostly remain. The state may have divested itself of the mass of loss-making factories, but they are still there. They cannot be closed overnight, nor can the state take over in short order the multitude of social functions these enterprises discharged. The social and political fabric of the country will not, in my view, endure a second shock, which would most probably produce 14-15 million unemployed as a result of such closures. Advocates of shock therapy do know about "transaction costs," yet the expression has been strangely absent from their vocabulary.<sup>165</sup> In the words of a western economist desiring anonymity, "short term macroeconomic hoop-jumping is achieved by storing up huge political problems" for the future.<sup>166</sup>

The new corporate elite has not yet produced much wealth for ordinary Russians and it is unlikely to do so in the foreseeable future. Nor is it satisfying the pent-up needs of the population. Today, imports are believed to account for up to half of the consumer

goods market, but those who can afford them remain a small minority.<sup>167</sup> They are also heavily concentrated in Moscow, a few big cities of western Russia, and provinces able to export fuels and other natural resources. The new elite, having acquired property rights to much of these resources, is thriving indeed. Part of the workforce in their industries is also faring reasonably well.

Yet corporatization has not improved the prospects even of this sector, at least in the near term. Investment continues to slump drastically, not excluding the main regions of oil and gas extraction. In both Tiumen' and Tomsk *Oblasts*, for example, the first half of 1994 witnessed a 40 percent drop in investment from the already very low volume in the corresponding period of 1993. Other resource regions, such as Khabarovsk and Maritime *Krays* and Kemerovo *Oblast*, did no better.<sup>168</sup> Given the severe geographical and geological constraints and the decay of the capital stock, Russian oil and coal production will remain near their present low levels into the next century. Continued export increases are very doubtful, and possible only with plant closures, unemployment on a massive scale, and severe fuel shortages in agriculture.

The much younger gas industry, with vastly greater reserves, is doing better and may even expand its exports somewhat. Yet it has also faced a pernicious decline in investment since the beginning of the decade. It has not replaced worn out capital either, nor prepared itself for the extremes of the Yamal Peninsula. Yet the accessing of reserves on that peninsula requires technologies so far untested anywhere in the world. In early 2000, the gas industry will be confronted with sharply rising capital demand and leaps along a new resource frontier, which it will be unable to undertake in its present state. Gazprom, which monopolizes the industry, is by far the world's largest energy company in reserves and volume of output. It has conducted the privatization process in a manner even more restrictive than petroleum companies. Despite increasing capital constraints, however, Gazprom is determined to limit outside participation to a minimum. Given its immensely valuable assets, its board may run the risk of swinging to the other extreme with respect to the 9 percent of its shares it must sell, according to *The Economist*. If it tries to get unrealistically high prices for these shares in order to finance the development of Yamal, it may actually delay the tapping of these immense reserves.<sup>169</sup> The corporate elite, while taking care of itself, would again fail to create new wealth for Russia as a whole.

---

## NOTES

<sup>1</sup> Anders Aslund, "Economic Developments in Russia," in *Russia, Ukraine, the Caucasus, and the U.S. Response*. Fourteen Conference, 12-17 January 1994. The Aspen Institute, Queenstown, Maryland, pp. 13-23.

<sup>2</sup> According to Vladimir Gandelman of Moscow University, 70-80% of all privatized companies in the capital were believed to be paying 10-20% of their turnover in protection money at the beginning of 1994. Criminal penetration of the economy has increased since that time (*Deutsche Press Agentur*, 21 May 1994 on *Sovset*). MVD (Ministerstvo Vnutrennikh Del') officials claim that every fourth business person in Russia as a whole is connected with the criminal economy. See Viacheslav Seliverstov, "Ekonomicheskaia prestupnost' gorazdo shire, chem my думаем," in *Moskovskie novosti. Biznes*, No. 17 (12-19 March 1995), p. 29.

<sup>3</sup> The model is that of Iurii M. Lotman and Boris A. Uspenskii. See Iurii Lotman and Boris Uspenskii, "Binary Models in the Dynamics of Russian Culture," in Alexander D. and Alice S. Nakhimovsky (eds.), *The Semiotics of Russian Cultural History: Essays by Lotman, Uspenskii, Ginsburg* (Ithaca, NY: Cornell University Press, 1985), pp. 30-66. The model is expounded and applied further in a still unpublished paper by Maria Carlson, "Democratization: Is it Possible in Russia?"

<sup>4</sup> Alexander Gerschenkron, "Time Horizon in Russian Literature," in *Slavic Review*, Vol. 34, No. 4 (December 1975), pp. 692-715.

<sup>5</sup> In most other countries, subsoil resources are owned or controlled by the government (even in Europe, according to Roman Law), where the lessor and royalty owner is always the government. Long-term legal impartiality is hardly possible where contracts are valid only to the next election or laws change erratically. Drilling rates comparable to those in the contiguous 48 states will not be achieved elsewhere in the world, a prospect which is germane to the future of oil and gas industries in the former USSR.

<sup>6</sup> Leslie Dienes, "The Soviet Oil Industry in the Twelfth Five-Year Plan," in *Soviet Geography*, Vol. 28, No. 9 (November 1987), pp. 617-655.

<sup>7</sup> Arild Moe and Valeriy A. Kryukov, "Observations on the Reorganization of the Russian Oil Industry," in *Post-Soviet Geography*, Vol. 35, No. 2 (February 1994), pp. 89-90.

<sup>8</sup> In fact, in the late spring of 1992, before the appointment of Viktor Chernomyrdin, then Yuri Shafranik, as minister of fuel and energy (with the former becoming prime minister in 1993), relations between field managers and the fuel ministry became badly strained. In the chaotic environment, "government committees, pseudo-market state corporations, integrated 'independent state companies,' and true commercial organizations ... jockeyed for position, resources, and hard currency," in Leslie Dienes, Istvan Dobozi, and Marion Radetzki, *Energy and Economic Reform in the Former Soviet Union: Implications for Production, Consumption, and Exports, and for the International Energy Markets* (London: MacMillan Press Ltd., 1994), pp. 105-106.

<sup>9</sup> For example, the reward structure of the Ministry of Geology ignored geographic accessibility and possible time scale of exploitation of new uncovered reserves. It also ignored reservoir quality and the properties of the oil itself. As a result, the ministry spent a large part of its effort creating frozen assets. By contrast, the ministry of the oil industry, under the gun of the physical output plan, overworked its large, well-located fields and was often forced to begin production prematurely at accessible but complex and insufficiently explored deposits. See Dienes, "The Soviet Oil Industry," pp. 640-641. Soviet refineries, enjoying the security of guaranteed profit, were largely indifferent to the quality of the crude refined and the share of the light fractions produced. They had no incentive to deepen their output mix, even though at world prices such refining was in fact a value subtracting activity. Even today, light fractions comprise only 62-63% of the product of Russian refineries against 75% and even 80% in the West. Increased demand for gasoline and diesel fractions were met by planners through setting ever higher targets for the extraction of crude oil and putting tremendous pressure on oil producers who prematurely exhausted

and damaged their best fields.

<sup>10</sup> Moe and Kryukov, "Observations," p. 94.

<sup>11</sup> A number of production associations are not grouped into large, vertically-integrated companies and have acquired a large measure of autonomy. Moscow, however, also created another large holding company, Rosneft', to arch over them, with the federal government holding the controlling share. The vague language of the Decree on Privatization of the Oil Industry leaves room for re-establishing tighter operational control by the center over the entire oil industry.

<sup>12</sup> Valeriy A. Kryukov and Arild Moe, "Controlling the Russian Oil and Gas Complex." Paper given at the NATO Economic Colloquium, Brussels, 30 June - 2 July 1994, Section IV; and Moe and Kryukov, "Observations," pp. 95-96.

<sup>13</sup> Citing Sergei Shakhrai, *Rossiiskie vesti* (Moscow) (11 June 1994), on *Sovset'*. Moscow consented to signing separate treaties with Tatarstan and Bashkortostan, but the greater cooperation between parliament, the prime minister, and the president that characterized the first half of 1994 has broken down in the wake of the brutal Chechen war. The constitution is also silent on the matter of whether or not it supersedes the earlier federation treaty. Apparently it does not obviate it because, according to Shakhrai, that treaty is "an instrument of the law in force."

<sup>14</sup> If for no other reason, this is so because the *okrugs* now deal directly with Moscow on most issues and need to share a far smaller portion of the revenues generated from oil and gas production with their *oblasts*. They have thus experienced at least a relative increase of power with respect to the federal government as well.

<sup>15</sup> Lynn D. Nelson and Irina Y. Kuzes, "Evaluating the Russian Voucher Privatization Program," in *Comparative Economic Studies*, Vol. 36, No. 1 (Spring 1994), p. 63.

<sup>16</sup> Nelson and Kuzes, "Evaluating the Russian," p. 63; *Analytica Moscow*, *C.I.S. Weekly Press Summary*, electronic mail version (24-30 December 1994); and *The Economist* (14 May 1994), pp. 67-69.

<sup>17</sup> *Interfax* (5 July 1994), on *Sovset*'.

<sup>18</sup> Marina Tsareva, "Veksel' stanovitsia vse populiarnnee, no po-prezhnemu ne imeet normal'noi zakonodatel'noi bazy," in *Finansovye izvestiia*, No. 90 (21 November 1995), p. III. A draft law on securities was finally submitted to the Duma in the spring of 1995. The legislative committee dealing with financial matters, however, has modified the bill and placed regulatory control of the capital market in the hands of the state rather than professional dealers and brokers. Clearly, the struggle over economic power in the new corporate Russia continues on many fronts and is far from settled yet. See Natasha Mileusnik, "Securities bill 'ruined' by Duma," in *The Moscow Times* (2 April 1995), p. 32.

<sup>19</sup> *ITAR-TASS* (20 June 1994), on *Sovset*'. The fact that huge numbers of loss-making enterprises will never give any dividends to the holders of their shares (a very large portion of which was distributed to workers) will probably become a source of serious social tension. Mikhail Khrashan, head of the largest of Russia's 640 investment funds (First Voucher Fund, with about 4.5 million shareholders) also acknowledges that about 70% of the stocks his fund owns are illiquid, making it nearly impossible to realize profit on them. See Euan Craik, "Voucher Fund Lost in Shuffle," in *The Moscow Times* (30 October 1994), p. 46. In order to attract investment in the second, post-voucher stage of privatization, a number of tax privileges were to be granted to investors, including foreign ones. Yet the requirements on participants have become more stringent. The winner of a competition will have to hand over one-fifth of the total value of declared investment to the privatized enterprise *within one month* after the end of the competition, otherwise its claim is null and void. See *ITAR-TASS* (4 July 1994), on *Sovset*'.

<sup>20</sup> The Jamestown Foundation, *Monitor*, electronic mail version (21 August 1995).

<sup>21</sup> "Voucher Auctions in the First Phase of Russian Privatization and the Emergence of Voucher Investment Funds," in *PlanEcon Report*, Vol. 10, No. 33-34 (4 October 1994), pp. 1-22.

<sup>22</sup> "Már csak pénzért," in *Heti Világgazdaság* (Budapest) (17 September 1994), pp.21-23.

<sup>23</sup> At the ruble/dollar exchange rate of late September 1994 (at which time most firms worth anything were auctioned off). Open Media Research Institute (OMRI), *Daily Digest* (Prague), electronic mail version (3 May 1995).

<sup>24</sup> Alexander Radygin, "The Russian Model of Mass Privatization: Government Policy and First Results," in Michael McFaul and Tova Perlmutter (eds.), *Privatization, Conversion, and Enterprise Reform in Russia* (Boulder, Colo.: Westview Press, 1995), p. 7. For reasons of size, huge regional variations, and lack of an information infrastructure, Russia could not follow the example of the Czech Republic, where the number of shares issued by enterprises was carefully matched by the number of vouchers issued.

<sup>25</sup> "Voucher Auctions," p. 4.

<sup>26</sup> Two flagrant, but by no means unique, examples of swindle happened in St. Petersburg. In the spring of 1994, a number of "businessmen" collected more than 400,000 vouchers, and then disappeared. In late 1993, a "company" named Amaris collected almost as many vouchers for 131 million rubles (worth \$327,500 at that time), and then simply closed its offices. Some of the approximately 640 investment funds made large profits by speculating on the secondary market while paying only the original value to their clients. Fifteen investment funds, including the deceptive sounding Neft' Almaz Invest (Oil Diamond Investment) committed gross infractions, even according to Anatolii Chubais. Since January 1994, more than 3 million applications have been lodged with law enforcement bodies throughout Russia to investigate fraud by investment funds, and the equivalent of \$4.5 billion has disappeared. See *The St. Petersburg Press*, No. 118 (8-14 August 1994); Jenő Krausz, "Senki tobbet," in *Heti Világgazdaság* (25 June 1994), pp. 25-27; and S. Skatershchikov and S. A. Kovalevskiy, "Investitsionnykh fondy spekuliruiut radi vyzhivaniia," in *Finansovye izvestiia*, No. 20 (13-19 March 1993), p. 8.

<sup>27</sup> Craik, "Voucher Fund Lost," p. 46.

<sup>28</sup> In Iliukhin's view, the West will not allow Russia to create a strong market economy. Foreigners may also acquire control of such firms not for future gain, but in order to eliminate them. "Deliberate elimination of enterprises of the military-industrial complex is already taking place," he claims. See *ITAR-TASS* (27 October 1994), on *Sovset*'. An equally paranoid view was expressed by Vladimir Piterskii, Vice President of the Russian Academy of Natural Sciences and an officer of the Russian Security Council, to an interviewer at The Jamestown Foundation. Piterskii claims that the Cherny brothers, who are British citizens, and London businessman David Ruben currently control two-thirds of the aluminum produced in Russia. They own 68% of the Saiansk aluminum combine, more than half of the Bratsk, and a fifth of the Krasnoiarsk and Novokuznetsk combines. He states forcefully that Russian banks have been buying up shares of Russia's aluminum enterprises on behalf of the off-shore company Trans-CIS-Commodities Ltd., which itself acts in coordination with the British company Transmetal, which is the largest trader in Russian aluminum. See The Jamestown Foundation, *Prism*, Part 2, electronic mail version (17 November 1995).

<sup>29</sup> Radio Free Europe/Radio Liberty, *Daily Report*, electronic mail version (22 November 1994); and OMRI, *Daily Digest*, electronic mail version (25 January 1995).

<sup>30</sup> Michael A. McFaul of the Carnegie Endowment reported presciently months ago that the "antipathy toward foreign investment could provide a potent issue for Yeltsin's opposition" which professes the "need to defend Russian land for Russian people." See Fred Hiatt, "Yeltsin's Opponents Demanding Curbs on Foreign Investment," in *The Washington Post* (27 September 1994), p. A1. Since that time, Russia's largest business weekly has firmly come out against permitting a western consortium (composed of Texaco, Exxon, Amoco, and Norsk Hydro) to develop the Timan-Pechora oil fields as envisaged; the project should instead be given to three of Russia's largest oil companies plus its gas monopoly, Gazprom. See *Moskovskie novosti. Biznes*, No. 2 (January 1995). *Postfactum. Oil and Gas* (Moscow) (26-31 December 1994) reports that the chief of Lukoil's marketing department, Vladimir Poroshin, remarked

recently that he would not be surprised if the state refuses to permit the proposed sale of 15% of the firm's stock to foreign investors, "lest they should tighten their control over one of Russia's leading companies"(p. 9).

<sup>31</sup> *Postfactum. Oil and Gas*, No. 42 (18-22 October 1994), p. 3.

<sup>32</sup> OMRI, *Daily Digest*, electronic mail version (2, 20, and 27 January 1995); *The Moscow Times* (30 October 1994); p. 47; and *Nezavisimaia gazeta* (Moscow) (16 August 1994), pp. 1, 4.

<sup>33</sup> *The Economist* (5 November 1994), p. 64.

<sup>34</sup> *The Economist* (14 May 1994), p. 67-69. In a few companies asset revaluation did take place. The restricted voucher auctions of Gazprom's assets were held after the company was apparently revalued from 236.7 billion rubles to 1,653.52 billion rubles at the beginning of 1993, according to two articles in *Kommersant* (Moscow). This nearly 9 fold increase, however, did not affect the 15% of shares distributed freely to managers and employees, nor the 10% retained out of concern for future disposition. And at any rate, in contrast to the 9 fold increase of asset values in current prices, Russian prices on the average rose more than 100 times. See *Kommersant*, No. 4 (January 1994), p. 31, and No. 10 (March, 1994), p. 33.

According to *The Economist*, market capitalization for Russia's 14,000 largest companies was valued at a sum of around \$12 billion, "only a touch more than Kellogg, [the] American cereal firm." The article also quotes a Hong Kong based investor, Marc Faber, who believes that "Russian assets are now almost as undervalued as German ones were in 1922," which provided "the best buying opportunity for German shares this century." *The Economist* (14 May 1994), pp. 67-69. Despite the upbeat tone of the writer, the comparison is not reassuring to me.

<sup>35</sup> Per barrel of reserves, market capitalization of Lukoil, the largest in Russia, is not even one percent that of Royal Dutch/Shell. See *The Economist* (14 May 1994), p. 67 and (16 July 1994), pp. 57-61; and Ilya Kotov, "Kupi sebe luchshe nemnogo <Gazproma>," in *Kommersant* (22 March 1994), p. 33. Enterprise valuation also

differs between Western Europe and North America, but not more than 2 fold for the industries listed.

<sup>36</sup> *Moskovskie novosti. Biznes* (20 September 1995), p. 19.

<sup>37</sup> *The Economist* (6 August 1994), p. 10.

<sup>38</sup> Shell's reserves refer to the proven, recoverable category; those of Lukoil refer to the proven plus probable ones, i.e., A+B+C<sub>1</sub> categories. In 1988 (the last year for which we have data) the proven, recoverable portion of west Siberian reserves comprised only 28% of the proven plus probable total. All but approximately 7% of these were in already producing fields, and 80% of these were in decline. As in the past, a large part of the C<sub>2</sub> reserves will not be promoted into the fully proven, recoverable category. Lukoil's present oil wealth can be withdrawn faster. However, production rates approaching more closely those at which Shell is withdrawing its reserves would demand a yearly inflow of investment into western Siberia of a magnitude greater than that prevailing in the first three years of 1990. Between 1985 and 1992, the cost of creating one ton of new capacity already rose ten fold, as the average yield of both old and new wells in western Siberia fell almost 5 times. Since 1975, such yields have dropped 13 and 16 times respectively. See A. A. Konoplianik and M. K. Selimov, "Rossiiskaia neftianaia promyshlennost', nalogovoe zakonodatel'stvo i inostrannye investitsii," in *Neftianoe khoziaistvo* (Moscow), No. 2 (February 1993), p. 2; and Leslie Dienes, "Prospects for Russian Oil in the 1990s: Reserves and Costs," in *Post-Soviet Geography*, Vol. 34, No. 2 (February 1993), pp. 84-88.

<sup>39</sup> *Finansovye izvestiia*, No. 88 (16 November 1995), p. 1; and Dienes, et al., *Energy and Economic Reform*, Chapter 2.

<sup>40</sup> A. V. Fomin, "Sostoianie i perspektivy razvitiia nefianoii promyshlennosti Rossii," in *Neftianoe khoziaistvo*, No. 1 (January 1994), pp. 6-9; and Moe and Kryukov, "Observations," p. 94.

<sup>41</sup> Isabel Gorst, "Siberia's Oil Generals Look for Freedom and Finance," in *The Petroleum Economist*, Vol. 60, No. 2 (February 1993), p. 5.

<sup>42</sup> Marshal Goldman reports that Lukoil's young chairman, with zero net worth only four years ago, has now amassed a fortune of \$2.4 billion. Marshall Goldman, "The Failures of Reform," in *The Moscow Times* (29 January 1995), p. 36; and Alexander Kakotkin, "Russia's Dirty Deputies," in *The Moscow Times* (19 February 1995), p. 36.

<sup>43</sup> Fred Hiatt, "Political Elites Vie for Power in Russia," in *The Washington Post* (25 March 1995), p. A1.

<sup>44</sup> Igor Nikolaev, Aleksander Privalov, and Natal'ia Kalinichenko, "Nikogda ne narushaite zakon po melocham!" in *Kommersant*, No. 4 (January 1994), pp. 31-32.

<sup>45</sup> Kotov, "Kupi sebe," pp. 32-33.

<sup>46</sup> *Ibid.*, p. 33.

<sup>47</sup> *The Economist* (15 October 1994), p. 93; and *Finansovye izvestiia*, No. 25 (11-17 April 1995), p. 4.

<sup>48</sup> Steven S. Rosefielde, "Peace and Prosperity in the Pacific Rim: Optimizing the Benefits of Japanese Assistance to Russia," in *Acta Slavica Iaponica* (Hokkaido University), Vol. 12 (1994), pp. 48.

<sup>49</sup> Corruption is believed to thoroughly permeate the executive branch and is penetrating the legislative. One investigative reporter, commenting on the illegal dealings of three deputies, avers that parliament is also engaged enthusiastically in the divvying up of state property. Kakotkin, "Russia's Dirty Deputies," p. 36.

<sup>50</sup> Kryukov and Moe, "Controlling the Russian."

<sup>51</sup> *Moskovskie novosti*, No. 44 (23 November 1994), p. 6.

<sup>52</sup> M. Dmitriev, "Rossiiskie reformy i politika gosudarstvennykh dokhodov," in *Voprosy ekonomiki* (Moscow), No. 8 (August 1995), p. 5.

<sup>53</sup> *Postfactum. Oil and Gas* (23-28 May 1994), p. 3.

<sup>54</sup> *Interfax* (10 June 1994); and *Postfactum. Oil and Gas*, No. 48 (28 November 1994), p. 11. Details of the draft law are analyzed in M. Kh. Gazeyev, "Osnovnye kontseptual'nye polozheniia zakona Rossiiskoi Federatsii 'O Nefti i Gaze'," in Valerii A. Kriukov and V. V. Shmat (eds.), *Aktual'nye problemy razvitiia neftianoi promyshlennosti Sibiri: sbornik statei* (Novosibirsk: Rossiiskaia akademiia nauk, Sibirskoe otd-nie, In-t ekonomiki i organizatsii promyshlennogo proizvodstva, 1993), pp. 62-71; and Gary B. Conine and J. Lanier Yeats, "Russian Petroleum Legislation: Assessing the New Legal Framework," in *Russian Oil and Gas Guide* (Tulsa, Okla), Vol. 2. No. 1 (January 1993), pp. 3-11.

<sup>55</sup> *Postfactum. Oil and Gas* (13-18 June 1994), pp. 4-5; and (23-28 May 1994), p. 4.

<sup>56</sup> *Postfactum. Oil and Gas* (23-28 May 1994), p. 4.

<sup>57</sup> The world price fell close to \$14 per barrel in March 1994, but a number of Russian oil exporters reported prices as low as \$11.50 per barrel for much of the spring (Courtesy of Matthew Sager of PlanEcon). Lower quality can explain a 50-70 cent per barrel difference with respect to the world price, but not more. See *ITAR-TASS* (14 July 1995) on *Sovset'*.

<sup>58</sup> Hiatt, "Political Elites Vie," p. A1; and Geoffrey Winestock, "Export Control End Could Mean Havoc," in *The Moscow Times* (4 December 1994), p. 58.

Both the World Bank and the IMF made the liberalization of oil exports a critical requirement for the release of loans, amounting to \$6.25 billion in the case of the IMF's stabilization fund. Yet while the quotas were indeed abolished, a government commission now supervises oil exports and determines access to pipelines on a quarterly basis. The commission gives clear preference to producers over mere traders and large producers over small ones. As of mid-February 1995 at least, World Bank officials reported no real move towards a true liberalization of oil exports. See *Kommersant*, No. 9, (1995), cited in *Analytica Moscow, Economica Weekly Press Summary*, electronic mail version (11-17 March 1995); and Alexander Gordeyev, "Analysis: Oil Exports No Freer," in *The Moscow Times* (19 February 1995), p. 53.

Russia desperately needs the IMF loan to finance up to half of its expected 1995 budget deficit. The IMF, in turn, must show the appearance of adhering to impartial, objective conditions *vis-à-vis* all recipients. Both parties, therefore, seem anxious to profess success in their reciprocal dealings, and a large degree of mutual self-deception with respect to the complete liberalization of oil exports is very much a probability.

IMF managing director, Michel Camdessus, flew to Moscow for two days of meetings with top government officials, stating afterwards that he would recommend the release of the loan. *The Washington Post* reported on 11 March 1995 that Yeltsin said *in a jesting tone*, “[e]veryone who had anything to do with financial issues at the federal level was doing his best to please the IMF and Camdessus” (p. A20). The loan is to be released only monthly, however, and not quarterly as demanded by the Russian government. Such unusual scheduling will provide an added pressure point for the IMF but also sufficient opportunities for face-saving modifications and revisions between the two parties.

<sup>59</sup> “Yeltsin may cancel these privileges, but real life will bring them back,” in Hiatt, “Political Elites Vie,” p. A1. Dumping also appears to continue. Export prices of refinery products in the first half of 1995 averaged a mere \$100 per ton. Even if residual fuel oil comprised a very large portion of exports, this price is extremely low, well below the price of crude oil itself. See *Ekonomika i zhizn’ Vash partner* (Moscow), No. 33 (August 1995), p. 16.

<sup>60</sup> Alexander Gordeyev, “New Oil Export Rules Prompt Concern,” in *The Moscow Times* (26 March 1995), p. 30.

<sup>61</sup> *Analytica Moscow, Economica Weekly Press Summary*, electronic mail version (17-23 June and 24-30 June 1995); The Jamestown Foundation, *Monitor*, electronic mail version (3 July 1995); Alexander Gordeyev, “No Room for Westerners in the Oil Pipeline,” *The Moscow Times* (5 March 1995), p. 31; and Gordeyev, “New Oil Export Rules,” p. 30.

<sup>62</sup> The Jamestown Foundation, *Monitor*, electronic mail version (31 August 1995); and OMRI, *Daily Digest*, electronic mail version (31 August 1995). Allegedly, the State Duma is also working on a new

law on foreign economic activities, attempting to restore some export controls. See *Komsomol'skaia pravda* (14 March 1995).

<sup>63</sup> *ITAR-TASS* (16 July 1994), on *Sovset'*.

<sup>64</sup> Tom Hazen, president of the Timan-Pechora company, is doubtless right in claiming that Arkhangel'skgeologiiia will be unable to come up with half of the \$10-15 billion project. Yet the regional company's proposal has the support of the local administration, which could expect much increased tax revenues if that company becomes a partner with such a high equity stake. "We are not some kind of Indonesia or Angola," declared Arkhangel'skgeologiiia's deputy director. "We don't need to give such a large project entirely to foreigners." Hazen, the western president of the Timan-Pechora consortium, composed of Texaco, Amoco, Exxon, and Norsk Hydro, has publicly called Arkhangel'skgeologiiia's startling demand "outrageous" and "totally unacceptable" for the western consortium. See *The Moscow Times* (18 December 1994), p. 40. On the other hand, Russian critics claim it intolerable that the western consortium would receive a full 95% of future profit from the venture, a proportion that has no precedent in history. How these critics arrived at a 95% western share, however, is not explained. The 6% royalty payment is also claimed to be unacceptably low. See Aleksander Stushnov, "V ch'ikh rukakh sud'ba timano-pechorskoi nefi?" in *Delovoi mir* (Moscow) (22 December 1994).

<sup>65</sup> A frequently employed method is to convert ruble assets to dollars and shift them abroad to a foreign partner as a fictitious advanced payment for goods and services that will, in fact, not materialize. See V. Fel'tsenbaum, "Inostrannye investitsii v Rossii, in *Voprosy ekonomiki*, No. 8 (August 1994), p. 16.

<sup>66</sup> By the end of July 1994, 73 of Russia's 89 republics and regions, plus Moscow and St. Petersburg, held elections to local legislatures. In 47 regions, elections to executive posts were held concurrently. See *ITAR-TASS* (1 August 1994), on *Sovset'*. These elections, completely ignored by the western press, were held according to local rules, regulations, and time schedules, as permitted under the new constitution. In addition, regional governors comprise almost one-half of the upper chamber of the new Russian parliament, which

enables them to obstruct the passage of laws that would impinge on their authority and power.

<sup>67</sup> Michail Dubik, "Energy Stock Fall, Market Fears Rise," in *The Moscow Times* (12 February 1995), p. 44.

<sup>68</sup> *Moskovskie novosti. Biznes*, No. 46 (November 1994).

<sup>69</sup> *Ekonomika i zhizn'. Vash partner*, No. 46 (November 1994), p. 22.

<sup>70</sup> The well publicized statements of now fired privatization chief Vladimir Polevanov about re-nationalization renewed budgetary battles with parliament, and the economic consequences of the brutal Chechen war greatly affected capital inflows. Western portfolio investment was reduced to a trickle during the second half of 1994 and the first half of 1995 after large inflows during the spring and summer of 1994.

<sup>71</sup> The Jamestown Foundation, *Monitor*, electronic mail version (6 July 1995).

<sup>72</sup> Both western and Russian commentators expect a heightening of social tensions, given the worthless shares most Russians hold. One recent study avers that the absence of any notion or even interest among government officials to "facilitate the survival of the newly privatized enterprises in an alien environment ... may insure, if uncorrected, that Russia's production system will not recover from its recent precipitous decline in the foreseeable future." The headlong privatization may intend to serve the purpose of wholesale plant closure, with the government now able to wash its hands of loss-making firms. In that case, compulsory privatization amounts to social fraud because enterprises have historically provided a wide array of social services for which no adequate substitutes have yet been created. Nelson and Kuzes, "Evaluating the Russian," p. 64. A TASS report, noting the likelihood of increased social tension arising from privatization, notes that "[i]t is to be regretted that Russia is again coming up to an important turning point in its economic reform without due preparation." *ITAR-TASS* (20 June 1994), on *Sovset'*.

<sup>73</sup> *ITAR-TASS* (21 July 1994), on *Sovset'*. The lamenter is Piotr

Aven, former minister of foreign economic relations and one of the most ardent of the “young Turks” initiating shock therapy. Regrettably, he does not mention his own role in destroying existing structures with nothing legitimate even half ready to take their place.

<sup>74</sup> *Interfax* (9 August 1994), on *Sovset'*; OMRI, *Daily Digest*, electronic mail version (7 August 1995); and OMRI, *Daily Digest*, electronic mail version (20 November 1995).

<sup>75</sup> MMM's president, first jailed and then sent to the State Duma in a bizarre election, has declared all present shares issued by his fund invalid. More recently, Khopër-Investment Fund suspended operations and shut its offices for a month after being denied a license by the newly created State Security Commission. Khopër's technique of luring investors by its aggressive advertising campaign was very similar to that of MMM. Meanwhile, 4 million Khopër investors are unable to sell their shares. The belated creation of the security commission, even if it avoids large scale corruption itself in the future, will only shut the barn door after most of the horses have escaped. See Natasha Mileusnic, “Khopër-Investment Fund Suspends Operation,” in *The Moscow Times* (29 January 1995), p. 50; Radio Free Europe/Radio Liberty, *Daily Report*, electronic mail version (2 November 1994); *ITAR-TASS* (28 July 1994), on *Sovset'*; and *Deutsche Press Agentur* (28 July 1994), on *Sovset'*.

<sup>76</sup> *The Financial Times* (London) (22 July 1994), p. 15.

<sup>77</sup> *Ekonomika i zhizn'*. *Vash partner*, No. 44 (November 1995), p. 13; and OMRI, *Economic Digest*, electronic mail version (2 November 1995).

<sup>78</sup> The legal, reported total income of the top 10% already surpasses that of the lowest 10% by more than 21 times, with the difference increasing. The latter “could serve as a ‘detonator’ of social unrest” in the future. See *Ekonomika i zhizn'*, No. 1 (1995), p. 1; and “Rossiiskoe predprinimatel'stvo,” in *Voprosy ekonomiki*, No. 2 (1995), p. 85. Income inequality, applied to legal income only, rose by some 50% as measured by the Gini coefficient since the beginning of 1992. According to this measure, incomes now are more unequally distributed than in the US. See *The Economist* (29 April

1995), p. 63.

A detailed examination of social conditions by the World Bank also concludes that income distribution in Russia has become as unequal as in the Philippines. See *Financial Times* (19 August 1995), p. 2. An earlier 1994 study by the IMF, which disputed official figures for declines of economic output, admitted to a one-third fall of real GDP between 1989 and January 1994 but claimed that real income dropped significantly less. However, that study did not include 1994 in its estimates and, with the IMF's customary insouciance towards equity issues, said nothing about the distribution of consumption across the population or among geographic, urban, and rural areas. See Ievgenii Gavrilentov and Vincent Koen, "How Large Was the Output Collapse in Russia? Alternative Estimates and Welfare Implications," International Monetary Fund (IMF) Working Paper (December 1994).

Since 1993, average real wages and salaries in Russia fell drastically. By March 1995, they dropped from three times the official minimum subsistence level to a mere 1.6 times over, with 40% of the economically active population slipping well below the poverty line. When pensioners and students are included, real income in the spring of 1995 was back to the mid 1992 level, i.e., to the level immediately following the price liberalization that axed consumer demand and wiped out the savings of the population. Wages and salaries (which, in addition, are paid with months of delay) in May 1995 comprised only 40.3% of real income, versus 43.5% for entrepreneurial activities, securities and dividends. See Russian TV INA (16 May 1995); and *Trud* (6 May 1995), p. 1.

<sup>79</sup> David Felix, "Adam Smith and Machiavelli Go to Moscow: Further Observation on Radical Reform," in *Challenge*, Vol. 37, No. 2 (March-April 1994), pp. 50-51.

<sup>80</sup> *Izvestiia* (14 July 1994); and *Finansovye izvestiia*, No. 41 (15 June 1995), p. 3. Gas supplies and rent for households, however, remain heavily subsidized.

<sup>81</sup> Viktor Mel'nikov, "Kak 'ubegaet' kapital?" in *Ekonomika i zhizn'*, No. 42 (October 1994), p. 7; Fel'tsenbaum, "Inostrannye investitsii," pp. 15-17; and The Jamestown Foundation, *Monitor*, electronic mail version (6 July 1995). The head of the Russian bureau of Interpol,

Iu. Melnikov, told BBC that a total of \$80 billion had fled the country by the end of 1994 (presumably both legally and illegally). Significantly, he accused western banks of playing a leading role in channeling the funds abroad. See OMRI, *Daily Digest*, electronic mail version (23 June 1995); and Iu. Petrov, "Pridut li investitsii v Rossiuu?" in *Ekonomika i zhizn'*, No. 41 (October 1995), p. 37.

<sup>82</sup> "Rossiiskoe predprinimatel'stvo," in *Voprosy ekonomiki*, No. 2 (February 1995), p. 89.

<sup>83</sup> Capacity must be replaced at increasingly smaller and more difficult deposits. Rents and quasi-rents, changing differentially through time, permeate the oil and gas industries. All this means that the economically optimal exploitation of deposits and a rational progression of capacity replacement over the years can only be approximate at best even in a fully marketized environment.

<sup>84</sup> A. V. Fomin, "Sostoianie i perspektivy razvitiia neftianoi promyshlennosti Rossii," in *Neftianoe khoziaistvo*, No. 1 (January 1994), p. 6; Dienes, "Prospects for Russian Oil," pp. 80-94; and Viktor Popov, "Vtoroi Tiumen' ne budet," in *Nezavisimaia gazeta* (19 April 1994), p. 4.

<sup>85</sup> Konoplianiuk and Selimov, "Rossiiskaia neftianaia promyshlennost'," p. 2.

<sup>86</sup> In all of 1993, a mere 900 prospecting and exploration wells were drilled, 2.5 times less than four years earlier. Annual drilling rates of developmental wells also would need to average much more than twice that in 1991. By the end of 1991, the geological risk in Tiumen' and Tomsk *Oblasts* (estimated as the ratio of productive to non-productive wells) rose by 56% compared to the average in the second half of the 1980s, according to a specialist. For Tiumen' *Oblast* as a whole, it rose by almost one half. See A. N. Tokarev, "Uchet riska v neftianoi promyshlennosti," in Kriukov and Shmat, *Aktual'nye problemy*, p. 106; and Vadim Dvukhrechenskii, "Neft'," in *Delovoi mir* (22-28 August 1994), p. 18. For well flows, required drilling rates, associated capital investment, projected costs, etc., see Dienes, et. al., *Energy and Economic Reform*, pp. 35-55, 64-74, and 116-118; and Konoplianiuk and Selimov, "Rossiiskaia neftianaia

promyshlennost’,” p. 2. Geological prospects are analyzed in detail by Gustavson Associates, *Petroleum Geology and Exploration Potential in the Former Soviet Republics*, Volumes 1 and 2 (Boulder, Colo: The Associates, 1992).

<sup>87</sup> Two sources give a good idea about the size and number of new deposits which must replace depleted reserves. One states that the approximately 450 discovered but undeveloped fields (excluding the 267 which contain highly viscous oil) are capable of producing 90 million tons annually. This means an average yearly output of 200,000 tons per field. See A. A. Konoplianiuk, “Neftianaia promyshlennost’ ” in *Neftianoe khoziaistvo*, No. 1 (January 1994), p. 16. Today 840 deposits are in production. See Fomin, “Sostoianie i perspektivy,” p. 6. Another source notes that Decree 180, issued in March 1993 by the federal government, lists 150 oil fields to be put into operation during 1993-1995. Fifty-five of these are located in western Siberia. Only 7 out of the 150 were projected to yield more than 500,000 tons per year, none of those outside western Siberia. See *Russian Petroleum Investor* (Los Angeles) (April 1993), pp. 62-67. By mid-1994 it had become clear that only a fraction of these deposits would be producing by the end of 1995.

<sup>88</sup> *World Gas Intelligence* (New York) (30 June 1994), p. 10.

<sup>89</sup> *World Gas Intelligence* (30 June 1994), p. 10. It is also doubtful whether the production facilities themselves can be constructed on the peninsula without the long proposed 520 km railway (only 230 km of which is ready). That railway, however, presents extraordinary difficulties on the ice-saturated permafrost of Yamal. Sober Russian voices fear the consequences that new “shock work” will have on the fragile environment both for the ecosystem and the native Nentsy, already decimated by past destruction of their habitat with male life expectancy reduced to a mere 44 years. See Rustan Arifdzhanov, “Iamal’skii gaz nam poka ne svetit,” in *Izvestiia* (28 January 1994), p. 3.

<sup>90</sup> *Segodnia*, No. 51 (1994).

<sup>91</sup> *Moskovskie novosti. Biznes*, No. 17 (27 April 1994).

<sup>92</sup> Gelman Moysey, "Elektroenergetika," in *Delovoi mir* (19 June - 2 July 1995), pp. 12-13.

<sup>93</sup> *Moskovskie novosti. Biznes*, No. 17 (27 April 1994); and Jonathan Stern, "Prospects for Russian Gas Demand and Exports," in *Oxford Energy Forum*, Issue 23 (November 1995), p. 3-5.

<sup>94</sup> So far the household-municipal sector has reaped only very modest benefits from the country's vast gas reserves. In 1993, it accounted for less than 14% of Russia's total gas consumption and furnished close to half of all its heating needs with solid fuels, putting an enormous burden on the population and the environment.

<sup>95</sup> The proposal (*kontseptsiiia*) calls for an increase of gas consumption by 95-115 billion m<sup>3</sup> at the beginning of the next century, which is unattainable. Gas supply to the rural population would expand by 200-250%. In addition, 21,500 km of Russia's gas transmission network has been in service for more than 20 years (with 4,300 km of the lines already exceeding their design life of 33 years). Official rehabilitation plans note that 4,195 km of reconstruction and 13,800 km of repair should be accomplished during 1996. In my opinion, it would be impossible to manage the task of such large scale rehabilitation and repair, in addition to the wide expansion of the distribution network and the delivery of the required incremental output from the Yamal Peninsula, even with political consensus and foreign investment on a scale amounting to tens of billions of dollars in half a decade. A wide expansion of the distribution network alone demands two-thirds as many steel pipes as the trunklines. See "Kontseptsiiia energeticheskoi politiki Rossii v novykh ekonomicheskikh usloviiah," in *Ekonomicheskie stantsii*, No. 4 (1993), pp. 2-11; "FSU Seen with Big Role to Play in Future European Gas Supply," in *Oil and Gas Journal*, Vol. 92, No. 14 (4 April 1994), pp. 79-80; and Dienes, et al., *Energy and Economic Reform*, p. 83.

<sup>96</sup> Some 35% of the decline in industrial and power plant use was counter-balanced by a moderate rise in consumption by the household and municipal sector. See Stern, "The Prospects for Russian Gas Demand," p. 3.

<sup>97</sup> Istvan Dobozi calculates consumption scenarios based on various price assumptions plus adjusted historic "crisis-period elasticities." His projections produce stagnating or declining gas consumption by the economies of the former Soviet Union until the latter part of the 1990s. Dobozi adjusts the very high historic gas demand/GDP elasticities downward, recognizing that, as the dominant incremental source of energy, gas "will absorb much of the effects of non-price driven structural changes in total output and of the technological improvement in energy use." "Crisis-period elasticities," derived from the 1989-1991 period, reflect the fact that "the income-elasticity relationships behave drastically differently in periods of stagnant and falling GDP than under normal economic growth," as revealed by the investigation. Dienes, et al., *Energy and Economic Reform*, pp. 150-167.

<sup>98</sup> *Biznes Segodnia*, No. 51 (27 September 1994).

<sup>99</sup> Debora Khargrivz, "<Gazprom> ot pomoshchi ne otkazyvetsia, no khotel by eiu rukovodit'," in *Finansovye izvestiia*, No. 16 (18-24 February 1993), p. 8.

<sup>100</sup> Mikhail Leont'ev and Rustam Narzikulov, "Rem Vyakhirev: Dazhe nashi konkurenty khotyat trgovat' s yedinyim <Gazpromom>," in *Segodnia* (26 October 1993); *Moskovskie novosti. Biznes*, No. 37 (5 October 1994), p. 1; and *World Gas Intelligence* (30 June 1994), p. 10.

<sup>101</sup> Rustan Narzikulov of *Biznes Segodnia* states that the Norwegian government's consent not to attempt to market Troll gas itself represents "payment" to Ruhrgas for its willingness to reserve the lion's share of its future market for Norwegian imports. In a poignant article, the author also takes note of Scandinavian companies' (Norsk Hydro's and Neste's) interest in the development of and production sharing from Russia's huge Shtokmanskoe field in the Barents Sea. He believes that Norwegian and other Scandinavian firms are positioning themselves for the period when aggregate output from Norway's North Sea passes its peak, sometime at the end of the first decade of 2000. Having thus cornered much of the incremental supply in Europe's expanding gas market, elbowing out Gazprom, Norwegian companies two decades hence would be able to use

Russian gas to compete with the Russian giant that will be marketing its supplies from the Yamal Peninsula. See Rustam Narzikulov, "Norvezhskii gas rossiiskomy--ne tovarishch," in *Biznes Segodnia* (6 September 1994), p. 11.

<sup>102</sup> "FSU Seen with Big Role," pp. 79-80.

<sup>103</sup> *Moskovskie novosti. Biznes*, No. 41 (2 November 1994), p. 40.

<sup>104</sup> A 1695 km extension of one loop into Poland and Germany for export will add another \$7-10 billion. *World Gas Intelligence* (30 June 1994), p. 10; and Ibrahim A. H. Ismail, "Capital limitations, environmental movements may interfere with expansion plans," in *Oil and Gas Journal* (9 May 1994), p. 62.

<sup>105</sup> Ruhrgas claims it does not need more gas before that date, and board member B. Bergmann stated that its supply situation was now "pretty good" for the next 10-15 years. Bergmann also claimed that Wintershall (Gazprom's exclusive downstream partner in the future) will bring improvement to the Russians only on 20% of the average end-use sales, since it is engaged only in distribution and marketing, which comprise only a fifth of the total chain from gas fields to consumers. According to him, Wintershall would have only about one-tenth of the market by 2000 and is aiming for 15% afterwards. See *World Gas Intelligence* (30 June 1994), p. 10. If this is true, it does not seem enough to support a 1044 mm pipeline from Yamal before a year or two after the turn of the century, even if all additional European demand outside Germany is satisfied by Gazprom, which clearly will not be the case. Ruhrgas and Wintershall, however, are bitter competitors, and Bergmann's claim may be biased. A much more recent report estimates that OECD-Europe's growing need for gas would indeed require a 42 billion m<sup>3</sup> increase of Russian exports, but not until 2005. See "Gert Maichel and Ruud de Vries Welcome the Prospect of Increased Russian Gas Supplies to Europe," in *Oxford Energy Forum*, Issue 23 (November 1995), p. 8.

<sup>106</sup> A. Akopian, *Industrial Potential of Russia* (New York: Commack, Nova Science Publisher, Inc., 1992), p. 35.

<sup>107</sup> I have data on the number of gas producing wells on Urengoy and

Yamburg only for the end of 1990, when that number stood at 1,414. In 1993, Russia's total stock of oil wells reached 148,000. Data for well stocks from VNIIE Gazprom (All Union Scientific Research Institute of the Gas Industry), see *Gazovaia promyshlennost' SSSR, 1990*, p. 46; and Fomin, "Sostoianie i perspektivy," p. 6. The 1992 extraction figures refer only to crude oil and non-associated gas, i.e. those produced by gas deposits only. Data from Matthew J. Sagers, "The Energy Industries of the Former USSR: A Mid-Year Survey," in *Post-Soviet Geography*, Vol. 34, No. 6 (June 1993), pp. 344 and 378. In 1995, Russian oil production (without gas condensates) fell to 296 million tons, a drop of some 90 million relative to the 1992 level. Some of that decline, however, is demand related, i.e., it stems from the inability of refineries in Russia and other former republics to pay for the crude oil at the greatly increased prices prevailing in 1994 and 1995. *Finansovye izvestiia*, No. 88 (16 November 1995), p. 1.

<sup>108</sup> P. Sergeev, "Degraditsiia energeticheskogo kompleksa Rossii," in *Voprosy ekonomiki*, No.4 (April 1994), p. 111.

<sup>109</sup> Aleksei Sukhodoev, "Eshche tri "legal'nye" neftekompanii," in *Kommersant daily* (17 August 1995), p. 1.

<sup>110</sup> *ITAR-TASS* (5 September 1995), on *TributCom*; Sergei Leskov, "Bor'ba za predel neftianoi sobstvennosti grozit poteriami dlia kazhdogo rossiianina," in *Izvestiia* (1 September 1995), p. 2.

<sup>111</sup> *Delovoi mir* (6-12 February 1995), p. 13; *Biznes Segodnia* (9 August 1994), p. 12; and *Ekonomika i zhizn'*, No. 37 (September 1994), p. 14.

<sup>112</sup> E. E. Goriachenko and V. M. Pushkarev, "Sotsial'nye aspekty razvitiia Tiimenskogo neftegazovogo regiona," in *Region: Ekonomika i sotsiologiia* (Novosibir'sk), No.2 (1994), pp. 68-86; and Kriukov and Shmat, *Aktual'nye problemy*, p. 105.

<sup>113</sup> *Kommersant daily* (18 October 1994).

<sup>114</sup> Boris Boiko, "Russkii triad: neft', gaz, i biudzhet," in *Kommersant daily* (13 July 1995), p. 2; and A. A. Konoplianik, "Investory

stremlitsia sformilirovat' pravila pol'zovaniia nedrami," in *Finansovye izvestiia*, No. 44 (29 September 1994), p. 2.

<sup>115</sup> *The Moscow Times* (4 October 1995), p. 14, cited in *Analytica Moscow, Economica Weekly Press Summary*, electronic mail version (30 September - 6 October 1995); and A. A. Konoplianiuk, S. Sosna, and M. Subbotin, "Rossiia stremitsia obresti kontsessionnoe zakonodatel'stvo," in *Finansovye izvestiia* (20 December 1994), p. 4.

<sup>116</sup> Konstantin Levin, "Prezident reshit kak razdeliat' proizvodstvo," in *Kommersant daily* (7 December 1995), p. 1; and OMRI *Daily Digest*, electronic mail version (20 December 1995). Other amendments provide for a rigid norm of Russian technology inputs which must be utilized within the framework of product sharing and import duties on equipment shipped in, which runs counter to the Law on Foreign Investment.

<sup>117</sup> *Interfax* (10 June 1994); and *Moskovskie novosti. Biznes*, No. 27 (20 July 1994), p. 1.

<sup>118</sup> The State Committee of Geology, and/or its regional subdivision the State Committee for Property, and the Fuel and Energy Ministry are supposed to agree on the value of such work in 1984 prices, then recalculate the amount into current prices, and finally convert it into dollars at an investment rate (sic). *Postfactum. Oil and Gas* (19-24 December 1994), pp. 5-6.

<sup>119</sup> *Kommersant daily* (3 August 1994), on *Sovset'*.

<sup>120</sup> N. Kirillova, "Neftedollary nam pomogut?" in *Ekonomika i zhizn'*, No. 43 (October 1994), p.4; *Ekonomika i zhizn'*, No.15 (April 1994), p.5; and No. 35 (August 1994), p. 9.

<sup>121</sup> Along its 13,915 km long borders, Russia had only 130 custom posts in mid-1993, and only a fraction of these were adequately provided to properly exercise control. While 88 more were planned by the end of 1995, no more than 15 of these would have the full array of equipment and authority. See Sergei M. Bekov, "Tamozhennye vesti," in *Ekonomika i zhizn'*, No. 35 (August 1993), p. 16; and Hermann Clement, *Die Entwicklung der wirtschaftlichen*

*Beziehungen zwischen den GUS-Staaten*, Working Papers, No. 164 (Munich: Osteuropa-Institut, December 1993), p. 53.

<sup>122</sup> *Interfax* (9 August 1994), on *Sovset*'. In addition, the president of Stinolneftegaz oil company was killed on November 17, 1995. OMRI, *Daily Digest*, electronic mail version (20 November 1995).

<sup>123</sup> *Interfax* (22 August 1994), on *Sovset*'.

<sup>124</sup> Alexander Gordeyev, "Oil Dispute Threatens World Bank Loans," in *The Moscow Times* (18 December 1994), p. 30.

<sup>125</sup> In addition, unused capacity does exist at non-Russian ports. In 1994, the country failed to use ca. 15 million tons of excess capacity at the Latvian terminal of Ventpils. Despite port fees, oil exports through Latvia should have become more profitable with the renewed plunge of the ruble, also providing further opportunity for bribery and dumping. See *The Moscow Times* (19 February 1995), p. 47.

<sup>126</sup> Juli Tolkacheva, "Oil Prices Skyrocket 59% in Early 1995," in *The Moscow Times* (19 March 1995), p. 29; *Ekonomika i zhizn'*, No. 30 (July 1994), p. 4; and OMRI, *Daily Digest*, electronic mail version (21 February 1996).

<sup>127</sup> Hiatt, "Political Elites Vie," p. A1.

<sup>128</sup> Vladimir Razuvayev, "Managing Russia's Oil," in *The Moscow Times* (12 March 1995), p. 25.

<sup>129</sup> Dan Van Atta, "Agrarian Reform in Post-Soviet Russia," in *Post-Soviet Affairs*, Vol. 10, No. 2 (April-June 1994), pp. 183-184.

<sup>130</sup> OMRI, *Daily Digest*, electronic mail version (10 and 13 February 1995); and The Jamestown Foundation, *Monitor*, electronic mail version (28 August 1995).

<sup>131</sup> The massive imports during the Brezhnev years consisted overwhelmingly of feed grain. Living standards were improving and fuel output growing, even if at a declining rate, until the Gorbachev

era. To the masses of Russians, therefore, oil exports did not appear to have been pursued at the expense of domestic industry, agriculture, and jobs. Yet, even then, criticism of forcing energy and raw material exports had become increasingly vocal by the 1980s.

<sup>132</sup> The share of imports relative to Russia's GDP well exceeds all exports of the European Union shipped outside Europe itself. In addition, more than half of non-food consumer goods cross Russia's porous borders with China and the CIS states illegally. See Volkhart Vincentz, *External Liberalization in a Large Country: The Contribution to the Transition Process in Russia*, Working Paper, No. 169 (Munich: Osteuropa-Institut, September 1994), pp. 12-18.

<sup>133</sup> *Ibid.*, pp. 24-25.

<sup>134</sup> Fomin, "Sostoianie i perspektivy," p. 6; and Akopian, *Industrial Potential of Russia*, p. 35.

<sup>135</sup> By mid-summer 1995, the US Export-Import Bank was to rule on whether to guarantee \$1 billion to Aeroflot International in order to help obtain financing for 20 Russian-built jetliners, the Ilyushin 96M, with a 300 seating capacity. With its Pratt & Whitney engines and other US avionics, "it would be Russia's first western-caliber intercontinental passenger aircraft." US Ex-Im Bank officials stress that they are not an aid agency; they must lend strictly on the basis of risk and financial considerations, and key laws in Russia to protect foreign investment are still not in place. The Russians, however, are also aware that agencies such as the Ex-Im Bank are bound by their charter *not to use US taxpayers' money to promote foreign competition that might endanger jobs at home*. Western investment decisions, therefore, are ultimately viewed as *political* decisions in Moscow and, as such will inevitably have *political* consequences. See Peter Ford, "Russia to US: Don't Shun Our High Tech," in *The Christian Science Monitor* (16 May 1995), p.1.

<sup>136</sup> *Moskovskie novosti. Biznes*, No. 34 (20 September 1995), p. 19.

<sup>137</sup> *Finansovye izvestiia*, No. 88 (16 November 1995), p. 1; and *Postfactum. Oil and Gas*, No. 4 (24-29 January 1994), pp. 19-20.

<sup>138</sup> According to Fuel and Energy Minister Yuri Shafranik. See *Segodnia* (27 September 1995), cited in *Analytica Moscow, Economica Weekly Press Summary*, electronic mail version (23-29 September 1995).

<sup>139</sup> Konstantin Levin, "Neftianye ministry sozdaiut svoiu finansovuiu sistemu," in *Kommersant daily* (1 December 1995), p. 3; *Interfax* (6 September 1995); and *Biznes Segodnia*, No. 45 (November 1995), p. 1. Moreover, 85-89% of the former republics' gross energy debt in the first six months of 1995 represented liabilities to Gazprom and not to oil producers or refineries.

The gas debt of Ukraine, Belarus, and the Baltic states alone comprised 78% of the aggregate fuel debt of non-Russia producers at the end of 1994. Gazprom's leverage on Ukraine for its very large debt is less than it appears and has clear technical and economic limits. Ukraine has plenty of underground gas storage capacity since most of its prolific fields (contributing almost 30% of all Soviet gas output from 1960 to 1977) have been drained already, partly as shipments to Russia and Europe. Russia has far fewer of such fields and they are in less convenient and more exposed locations, such as the North Caucasus. An abrupt shutting of high yielding gas wells in northwest Siberia also can damage reservoirs, while laying off labor is politically risky. See *World Gas Intelligence* (December 1992), p. 5. Russia has few other outlets for its gas within the former USSR because the gas network does not extend east of the Kuzbas; Central Asia is also an exporter and supplies Kazakhstan as well, while Transcaucasia is still in political convulsion and is economically broke.

<sup>140</sup> Levin, "Neftianye ministry sozdaiut," p. 3.

<sup>141</sup> The Jamestown Foundation, *Monitor*, electronic mail version (28 December 1995). Concurrent with the diminishing energy leverage, Russia's imports from the CIS surged in 1995 by a spectacular 24.2%, thanks mainly to a sharp rise in imported grain and foodstuffs. Russia's trade surplus with the former republics is now quite small.

<sup>142</sup> Iurii Shafranik, "Iz krizisa možhno vybrat' tol'ko vmeste," in *Moskovskie novosti. Biznes*, No. 23 (22 June 1994), p. 2; OMRI,

*Daily Digest*, electronic mail version (27 April 1995); and The Jamestown Foundation, *Monitor*, electronic mail version (7 July 1995).

<sup>143</sup> *Kommersant daily* (10 January 1996), cited in *Analytica Moscow, CIS Weekly Press Summary*, electronic mail version (7-13 January 1995).

<sup>144</sup> Russia signed the six intergovernmental agreements with Belarus notwithstanding the latter's sale of sophisticated missile fire control systems to a US company (which turned out to be an agent of the American government), a sale that has infuriated the Russians. According to the agreements, Belarus will allow Russia "national free passage regime" for its exports, will not charge rent payments for military facilities and activities on Belarussian soil, and has removed all obstacles for new oil and gas pipelines through its territory. The removal of all obstacles probably also means very low transit fees, though no information on this is available yet. See OMRI, *Daily Digest*, electronic mail version (20 January 1995); and *Analytica Moscow, CIS Weekly Press Summary*, electronic mail version (7-13 January 1995).

<sup>145</sup> Political concession by Ukraine again seems to underlie the offer of debt postponement and restructuring, though firm proof is still lacking. *Kommersant daily* states some observers believe Ukraine had to accept Russia's claims to be the sole heir of all assets and liabilities of the former USSR, including Soviet property on foreign soil estimated to be worth \$150 billion. See *Kommersant daily*, cited in *Analytica Moscow, CIS Weekly Press Summary*, electronic mail version (26 November - 2 December 1994).

<sup>146</sup> *Moskovskie novosti. Biznes*, No. 31 (24 August 1994), p. 5.

<sup>147</sup> United Nations, *1993. Energy Statistics Yearbook* (New York: United Nations, 1995), pp. 45, 49, 51, 61, 224, 226, and 232. Gasoline consumption in Ukraine fell below that in Jamaica or Panama.

<sup>148</sup> *Izvestiia* (18 January 1994), p. 2; Mark Trumbull, "Aluminum Firms Squeezed by Surplus Russian Output," in *The Christian*

*Science Monitor* (11 January 1994), p. 11; and Trumbull, "Global Agreement Cuts Aluminum Glut, Boosts Prices," in *The Christian Science Monitor* (31 March 1994), p. 9. As prices picked up in 1994, Russia again increased its metal exports hugely, especially that of primary aluminum and refined copper. From January through September 1994, the shipment of these two metals rose by almost 1.5 times and 3.3 times respectively. 78.2% and 64% of all production of these two metals were exported. See *Ekonomika i zhizn'*, No. 51 (December 1994), p. 4.

<sup>149</sup> *ITAR-TASS* (13 September 1993), on *TributCom*.

<sup>150</sup> OPEC's share of world reserves rose from 75 to 77% between 1973 and 1993. During the 1980s, more than 98% of world reserve additions took place in OPEC countries, and the reserve increments in that decade amounted to more than three-fifths of all reserves added in the world from 1960 to 1990. The growth in new production and shipping capacity, on the other hand, is not keeping up with rising demand since in OPEC countries oil investment is paid for by the state, and these states today are very short of cash. See Ismail, "Capital limitations," pp. 60-68; and *The Economist* (Survey of Energy) (18 June 1994), pp. 11-14.

<sup>151</sup> *Ekonomika i zhizn'*, No. 1 (January 1995), p. 19.

<sup>152</sup> See, inter alia, V. Neverov and A. Igol'kin, "Neft': ekonomika i politika," in *Ekonomika i zhizn'*, No. 13 (April 1993), p. 21; Popov, "Vtoroi Tiumen'," p. 4; Zh. Medvedev, "Krizis ili agoniiia," in *Delovoi mir* (20-26 June 1994), p. 20; Sergei Akimov and Iulii Antonov, "Zvachka za neft'" in *Delovoi mir* (21-28 May 1993), p. 4; and the chairman of the Duma's Natural Resource Committee quoted in *Postfactum. Oil and Gas*, No. 42 (18-22 October 1994), p. 3.

<sup>153</sup> *Moskovskie novosti. Biznes*, No. 44 (23 November 1994), p. 40.

<sup>154</sup> *Interfax* (5 September 1994), on *Sovset'*; and Vitalii Bushuev, "Kakoi budet energeticheskaiia strategiia Rossii," *Ekonomika i zhizn'*, No. 4 (January 1994), p. 5.

<sup>155</sup> *Moskovskie novosti. Biznes*, No.44 (23 November 1994), p. 5.

<sup>156</sup> Aslund, "Economic Developments in Russia," p. 93.

<sup>157</sup> Dienes, "Prospects for Russian Oil," pp. 85-90.

<sup>158</sup> Mikhail Surtsov, "Kto znaet fontan," in *Nezavisimaia gazeta* (9 July 1991), p.1; and Dienes, "Prospects for "Russian Oil," pp. 83-90. Since 1991, reserve additions have failed to keep up with production. Proven reserve-production ratios, therefore, are more like 13 than 15 years. It is also crucial to note that a proven reserve cushion of 13-15 years can maintain output for only a fraction of that time period. Only steady reserve additions in the fully proven, recoverable category can keep production level.

<sup>159</sup> *The Economist* (5 November 1994), p. 64; and *Moskovskii komsomolets* (18 November 1994).

<sup>160</sup> *Moskovskie novosti* (20 September 1995), p. 19.

<sup>161</sup> Steven Rosefielde, "Russia's Economic Recovery Potential: Optimizing the Residual Productivity of the Soviet Capital Stock," in *Comparative Economic Studies*, Vol. 36, No. 4 (Winter 1994), p. 133. Rosefielde writes that the counsel of the shock therapists encouraged the leadership in believing that "newly emerging entrepreneurs would fully harness the market potential of Russia's inherited capital stock, prodded by lure of profits and the fear of bankruptcy," a counsel which so far has not been vindicated. Rosefielde also recognizes that other factors, such as the failure to install rapidly "an effective system of commercial law and contract enforcement" have also contributed greatly to the magnitude of the collapse (p. 133).

<sup>162</sup> Obviously, as Rosefielde notes, these strategies will only work if the mafia and the kleptocrats are suppressed and "the leadership operates in the public interest. Public works for the kleptocrats and the military-industrial complex might be even more detrimental than sink-or-swim shock therapy." Rosefielde, "Russia's Economic Recovery," p. 139.

<sup>163</sup> Gerschenkron, "Time Horizon," pp. 692-715.

<sup>164</sup> Robert J. McIntyre, "The Phantom of the Transition: Privatization

of Agriculture in the Former Soviet Union and East Europe,” in *Comparative Economic Studies*, Vol. 34, No. 3-4 (Fall-Winter 1992), p. 82.

<sup>165</sup> 14 million unemployed would represent about a fifth of the labor force in 1992-93. This is far higher than current unemployment in any West European state except Spain, where the rate reached 24% in 1994. See *The Economist* (30 July 1994), p. 20. Spain, however, has received very large transfer payments from the EU. In addition, most families in Spain own their home, a much better developed social safety net exists, and there are better climatic conditions, all of which make the unemployed's lot far, far easier than in Russia.

As a result of its rapid modernization, Spain also accumulated almost a \$100 billion trade deficit in the last five years of the 1980s alone. With its gas and oil wealth, Russia is running a trade surplus, but the official figure of \$15 billion for 1993 (and \$13.8 for the first 9 months of 1994) is widely exaggerated because the volume of imports is grossly underreported. The IMF, after cross-checking with mirror statistics of Russia's trading partners, believes that the foreign trade surplus in 1993 was only about \$5 billion, one-third of the official number. See *The Moscow Times* (23 October 1994), p. 43. If imports, the bulk of which are consumer and luxury goods, continue to rise while oil and gas exports fail to grow, the trade surplus may become insignificant in the near future. Yet, as of now, most of Russian imports did not play much role in the process of modernization and structural change. Machinery, for example, comprised only 18% of the total in the first half of 1994, and a large part of that machinery (perhaps half still) originated in other former republics. See *Ekonomika i zhizn'*, No. 44 (October 1994), p. 6.

<sup>166</sup> Euan Craik, “What is Driving the Economic Recovery,” in *The Moscow Times* (26 March 1995), p. 29.

<sup>167</sup> A. Strel'tsov, “Chto otrazhaet zerkalo reform,” in *Ekonomika i zhizn'*, No. 23 (June 1995), p. 2; and *The Moscow Times* (23 October 1994), p. 43.

<sup>168</sup> *Ekonomika i zhizn'*, No. 37 (September 1994), p. 14.

<sup>169</sup> *The Economist* (15 October 1994), p. 93.

# **The Donald W. Treadgold Papers**

*In Russian, East European and Central Asian Studies*

## **Available Papers**

- No. 1: Law In Russia (\$4.00) - Essays by Theodore Taranovski, Peter B. Maggs, Kathryn Hendley, and Steven A. Crown**
- No. 2: Religion in Imperial Russia (\$4.00) - Essays by Robert L. Nichols and Henry R. Huttenbach**
- No. 3: The Fate of Russian Orthodox Monasteries and Convents Since 1917 (\$4.00) - Charles Timberlake**
- No. 4: The Mennonites and the Russian State Duma, 1905-1914 (\$4.25) - Terry Martin**
- No. 5: Corporate Russia: Privatization and Prospects in the Oil and Gas Sector (\$4.25) - Leslie Dienes**

**Coming soon:**

**\*Post-Communist Transitions: The Rise of the Multi-Party Systems in Poland and Ukraine - Andrii Deshchytsia**

**\*Russian Banking: An Overview and Assessment - Kent F. Moors**

Please make all checks payable to the *University of Washington* (international orders add \$1.00, WA residents add 8.2% sales tax). A ten issue subscription is available for \$38.00. Orders and subscriptions should be directed to Letty Coffin, managing editor, at the following address:

**The Donald W. Treadgold Papers**  
Jackson School of International Studies  
Box 353650  
University of Washington  
Seattle, WA 98195-3650

(206) 543-4852

Internet:  
treadgld@u.washington.edu

ISSN 1078-5639

*The Donald W. Treadgold Papers*  
*in Russian, East European and Central Asian Studies*

*Jackson School of International Studies*  
*Box 353650*  
*University of Washington*  
*Seattle, WA 98195-3650*

---

---

---

---

---