

Chapter 6

The Soviet Experiment: Lessons for Development

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For most of the twentieth century, central economic planning was regarded as a path to rapid economic growth. It was also seen as a means of avoiding pitfalls of capitalistic development, such as pollution and income inequality. Despite these commonly held views, central planning has proved to be an unsustainable system everywhere it has been tried. The experiences of the USSR and the subsequent “Former Soviet Union” (FSU) countries provide useful case studies.

The Soviet system was widely promoted as a superior way of co-ordinating economic activity compared to the market system. In reality, knowledge and incentive problems led the Soviet system to waste resources and provide poorly for citizens. Such growth as it was able to generate came primarily from increasing the amount of resources used, rather than increasing efficiency of resource use, as occurs in market economies. The costs of the system, in terms of wasted resources and environmental degradation were immense, and the benefits, in terms of better living standards for the average citizen, were inferior to those of market economies. The subsequent performance of the transition countries of the FSU has been checkered, held back by a strong state sector, incomplete reform, and corruption.

This chapter surveys development in the Soviet Union and two major FSU states. It begins by outlining the theory and practice of Soviet central planning, and shows why central planning failed as an economic development strategy. The chapter also analyzes the consequences of a necessary condition for central economic planning – concentrated political power – and discusses how these political and economic features of the system generated environmental and human catastrophe. The transition experiences of Russia and Ukraine, the two largest of the former Soviet republics in terms of population, are then briefly examined. Both countries have undergone partial reform – more property is in private hands and the private sector has grown – which has led to improved economic performance in both countries. But insecurity of property rights remains a barrier to development, as does continued government protection of old centrally planned industries and sectors, which remain the worst polluters and resource wasters.

If sustainability is defined as the ability of a system to provide an acceptable standard of living for citizens, whilst simultaneously ensuring that environmental problems are adequately addressed, central planning is not sustainable. The Soviet system should be regarded as a model of how not to develop.

The Theory and Practice of Soviet Planning

The Soviet Union was one of the great experiments in economic development – a grand, tragic, failed experiment. The poor performance of the system is directly attributable to the inability of central planners rationally to allocate resources. This in turn is a consequence of the lack of private property rights and markets, which meant the planners were unable to acquire coherent information about what should be produced by whom, with what, when and how.

In a market system, the voluntary exchange of private property leads to the emergence of prices. These prices then act as a signal to entrepreneurs, who identify goods that might be offered for sale. When the entrepreneurs are correct about their estimates, they produce and sell goods that people want at a price they are willing to pay and they make a profit. When they are incorrect, they make a loss; if they continue to make losses, they go out of business. The system therefore favours entrepreneurs who are better at gathering information and using it to co-ordinate production. It is, to use the current jargon, a self-ordering and self-correcting system.

By contrast, the incentive structure of the soviet system led to persistence of “obvious” mistakes, causing unnecessary waste as well as both human and environmental destruction.

Unfortunately, the Soviet system has been widely adopted as a model for development both by less developed countries and by international agencies such as the World Bank. The result has been development failure and a perpetuation of misery and poverty. The victims of the Soviet model are far more numerous than the Soviet citizenry (which itself numbered nearly 300 million at the height of the system) and the citizens of the Soviet client states in Eastern Europe. Given this legacy, and the continuing calls in some quarters for increased central planning in order to promote ‘sustainable development’, it is important to understand the Soviet system and why it failed.¹

This section outlines several key aspects of the Soviet system. The first thing to recognize is that central planning, as it is supposed to work in theory, cannot function, and that the reality of the system diverged from how it was supposed to operate.

The Theory

In principle, the system was supposed to substitute rational planning, by experts, for the alleged vagaries of allocation by prices in markets. In place of market allocation, the system used what was called “materials balance planning”. While some of the specifics of system changed over time, the basic model remained the same. The system was hierarchical, with production decisions made at the top and handed down through the system as orders. At the same time, information regarding production capacities and goal attainment were to be passed back up through the system from below.²

Under materials balance planning, initial objectives for output were set by the state planning agency, Gosplan, in line with “guidelines” (orders) handed down from the communist party. These objectives specified kinds and targeted quantities of various outputs, in line with the goals of the Soviet leadership. These targets were then passed down to the level of various economic ministries and sub-ministries (e.g. ferrous metals, machine building, agricultural) where they were augmented with further detail and passed down to the level of the state owned enterprises (SOEs) in the form of output quotas. Each SOE, in turn, was to estimate the inputs it would need in order to fulfill its quota. This information was then passed back up through the system, to be assembled by the planners into an overall plan. Armed with the lists of proposed outputs and required inputs, the central planners attempted to calculate the total production needed to achieve

¹ Much of the information in the following presentation is based on the discussions in Boettke (1993), Gregory and Stuart (1997), Hewett (1988), and Kornai (1992).

² The one-year plan was the actual set of operating instructions for the Soviet economy, and is described here. The more widely known five-year plans were largely indicative, and suggested goals which the one-year plans attempted to attain.

the planned outputs, that is, to achieve a feasible plan. Since there are multiple ways to produce most goods, there are, in principle, multiple feasible plans – the objective of the planners would then be to select the lowest-cost (in terms of resource use) of these. The resulting plan specified planned production, including production quotas for each SOE.

The Practice

While such a system might in theory be expected to coordinate production well, in practice it was plagued by flaws that the Soviet planners were unable to overcome. These flaws, which are inherent in the system and not amenable to correction, were essentially twofold:

First, planners were unable to generate feasible plans. The enormous task of coordinating all production for an entire economy is simply beyond the ability of a central planning agency. Calculating a balanced plan, in which sufficient inputs were produced to permit production of the planned final output, proved impossible, and in fact no plan ever successfully achieved a “materials balance.” Attempts at *ex ante* coordination of the entire economy led to chronic shortages of inputs throughout Soviet industry. This, in turn, led to hoarding of inputs by SOEs, an unusual degree of vertical integration, as enterprises attempted to produce their own inputs, and the development of an unofficial economy in which inputs were traded among firms desperate to meet their official output quotas. Also, when a shortage of some particular input became apparent, the planners often responded by allocating the supplies to the most politically powerful sectors (e.g. military and heavy industry) and cutting allocations to less favored ones – typically those which produced such things as consumer goods, housing, and medical infrastructure.

Second, planners found themselves unable rationally to calculate factor costs. They were thus unable to identify the most efficient way of producing any particular output. Given that there are multiple ways of producing most goods, and that these differ in terms of resource requirements, the question arose as to what was the least-cost set of (sub) plans. In the absence of market prices, it proved impossible to compare the values of inputs in alternative uses, and hence Soviet industry was plagued with persistent waste. For example, Soviet petroleum extraction techniques used more inputs to extract less crude oil, for a given quality of deposit, than did western techniques. Such wastefulness was harmful both to economic development and environmental quality.

The absence of a measure of cost and value generated a related problem. In order to ensure that managers and workers followed the plan, those at the top of the hierarchy used a combination of terror and rewards to induce compliance. Of the latter, the payment of bonuses to managers and workers for successful fulfillment of the plan was particularly important in ensuring obedience. But the lack of market prices to indicate value made the determination of success or failure problematic. When market indicators are not available, how does one measure success or failure? This “success indicator problem” hindered the attempts by planners to direct the economy throughout the existence of the USSR.

The obvious solution to the problem is to measure output in terms of physical characteristics, including both quantity and quality. Unfortunately, it was not possible for planners to know, much less to specify, the minimum quality characteristics required for each good in order to make the overall plan feasible. For example, in assigning quotas for sheet steel, the plan would assign tonnage to be produced but would necessarily leave some dimensions unspecified – in

practice, these included such things as gauge, chemical composition, and heat treatment. SOEs then produced output in such a way as to increase the likelihood of achieving quotas, that is, by cutting corners on unspecified margins. Monitoring and specifying these unspecified margins proved impossible. Hence, much of the output of the Soviet economy was of poor quality, or even useless, even though it seemed on paper to represent successful production. As a result, a substantial portion of Soviet output is thought to have been “negative value added,” that is, less valuable than the resources and labor that went into its making.

The Perverse Incentive Effects of Central Planning

Closely related to these difficulties are the incentives that were generated downstream from the planners. At the levels of industrial ministries, sub-ministries, and SOEs, the first concern was to satisfy the central authorities above, in order to avoid punishment and earn bonuses for attainment of targets. This had several detrimental effects on behavior. It was in the interest of the managers and workers of an SOE that the planners should underestimate the enterprises’ productive capacity and overestimate its input needs – this would ensure lower, more easily attainable quotas, and greater likelihood of sufficient resources. As a result, the system generated strong incentives for misreporting, and much the information that was passed through the system was intentionally false. Coupled with the success indicator problem, this meant that the central authorities had no real understanding of the economy’s performance.

Also, enterprise managers had little incentive to invest in innovative, resource-saving technology, since to do so would increase plant capacity or reduce input requirements. The former effect would lead to higher quotas for the plant, while the latter would imply lower input allocations; neither of these was in the interest of managers or workers, whose primary objective was to earn bonuses as easily as possible. This contrasts with the incentive of a capitalist firm to develop resource-saving technologies in order to reduce costs and thereby increase profits. Such innovations are a primary means of conserving resources and avoiding pollution.³ The lack of innovation plagued Soviet industry, which used more resources and generated more pollution per unit of output, compared to western industry. This failure to innovate persisted despite the extremely high quality of physical science and theoretical engineering in the Soviet Union, attesting to the strength of the perverse incentives of the system.

Another effect of the system was to generate severe “commons problems.” All productive property was officially owned by the state, and in principle all decisions concerning its use were made by the planners. In practice, it was impossible for the central planners closely to monitor the use of raw resources and other inputs. Thus many resources were “open access,” waiting to be grabbed by anyone on the spot. This sometimes resulted in destructive competitions for resources, or in diversion of assets to private uses. Examples include the hauling away of Black Sea resort beachfront sand for construction purposes, and the mass diversion of water from the Aral Sea for cotton irrigation, resulting in destruction of the one of the Soviet Union’s largest fishing industries.⁴ Such commons problems are, at heart, competitions for unassigned or poorly assigned resources. These occur in every economy, but were particularly severe in the Soviet Union. Again, this is inherent in the system. Under a system of private property, with legal institutions for the enforcement of property rights and contracts, agents can generally avoid such

³ [See Desrochers, this volume, ed.]

⁴ Goldman (1972b); Pryde (1991).

wasteful competitions. But under central planning, with official ownership by the state, much property becomes de facto open access. Furthermore, in another triumph of a priori constructivist reasoning over reality, there existed in the Soviet Union no good formal mechanisms for adjudicating subsequent disputes – on the grounds that such disputes were in principle impossible if the system functioned correctly.

A final perverse result of the system was the development of a second, unofficial economy alongside the official planned one. The unfeasibility of the plan, and low quality of much of that which was produced, meant that SOEs often found themselves without adequate inputs for meeting their assigned quotas. One common response was to engage in market trading with other firms for inputs. This trading was outside of the plan, and while it was, strictly speaking, illegal, it was pervasive. The result was a shadow market economy for inputs. Similarly, black market trading was extremely common in the areas of consumer goods and services – particularly services – sectors that received short shrift in the official planning. Given the poor functioning of the official system, people had little choice but to develop and rely on such unofficial and extralegal activities. One effect was to make shadow activity seem commonplace and acceptable, a normal part of life. This has very likely been an important “cultural” factor in the explosive growth of shadow activity and corruption following the demise of the Soviet Union.⁵ Regardless, it is well understood that an unofficial market system offers far less in terms of gains than does one in which individual rights and contracts receive official legal protection. The central planning system proved unable to avoid the need for markets, and at the same time undercut markets’ potential efficiency by forcing them into the shadows. In doing so it also encouraged a general attitude of cynicism and belief that deception is a normal part of day-to-day life.

Mobilizing Resources as a Development Strategy

Despite these problems, the Soviet economy was able to produce a sort of growth, which by some measures was spectacular, and was able to sustain itself for nearly seventy years. Growth rates in terms of physical units of output were often impressive (although such measures do not control for quality, nor for value, as discussed above). Although reported production levels must be taken cautiously, since everyone in the system had incentives to overstate success, apparent Soviet performance was sufficiently impressive that the Soviet system was seen as the best strategy for rapid economic development. This belief is still given credence by some, which is unfortunate because the sort of growth the Soviet system was able to generate seems particularly unsustainable – indeed it is detrimental to real sustainable development.

Industrial output clearly expanded enormously over the course of Soviet history. However, we now know that the primary engine of this growth was the increased use of resources. Under such a strategy, growth must slow as resources become scarcer. And once all resources have been mobilized, growth must cease.⁶ This is exactly what happened in the Soviet Union: growth gradually slowed and then the economy went into decline, as the natural barriers to this strategy

⁵ Kneen (2000).

⁶ In the Soviet experience, these constraints were exacerbated by the incentives for wasteful behavior, previously mentioned. Additionally, official acceptance of the Marxist doctrine of the labor theory of value meant that raw resources had an implicit value of zero; in practice they were often treated this way, leading to additional wastefulness in harvesting of timber, extraction of oil, etc (Goldman, 1972a).

were reached. Socialism – at least as it was attempted in the Soviet Union and probably in all its forms – is ultimately unsustainable.

By contrast, growth in western capitalist economies originates predominantly from *improved* use of resources, rather than *increased* use of resources. These improvements come from innovations in technology, in human capital, in methods of organization, and in institutions. Capitalist growth is fundamentally knowledge-based rather than resource-based. It is, therefore, not constrained by the physical availability of resources. Indeed, such advances generate more output, and more valuable output, from given resources, and in this sense are resource-conserving; quite the opposite of what is observed under socialist growth. Industrial production in the Soviet Union on average required at least twice the input per unit of output, compared to that of the west.⁷

The economist Paul Romer has observed that if technical knowledge develops at a sufficiently rapid rate *and* is successfully brought to bear on economic problems, there seems no obvious limit to economic growth.⁸ The Soviet system did invest heavily in scientific and technical research; it just didn't invest in *appropriate* research; nor did it apply the research effectively. The problem is that innovative advances are often specific to a particular firm or industry and they typically require experimentation and learning, through a process of trial and error. Such innovations are far more likely to occur in a system of decentralized decision making, in which all stakeholders in the economy have control over their particular productive assets, than in an economy where central authorities direct everything.

In addition, the theory that development and growth are resource-driven led to some of the worst excesses of Soviet terror. The leading reason behind the collectivization of agriculture was the desire to extract a “surplus” for investment in industry. The theory was that the application of resources, embodied as physical capital and applied to industry, would be the engine of growth. The resulting “dekulakization” (1928-1933) resulted in the premature deaths, through execution and enforced famine, of millions of peasants.⁹ The collectivization of agriculture was successful inasmuch as it enabled the central planners to squeeze a surplus from the peasantry to fund industrial expansion. But even if the resulting production increases constituted real growth, which is questionable, it is impossible to consider such a bloodstained strategy a reasonable model for development.

Unfortunately, the apparent success of the Soviet approach in generating growth reinforced the notions that development comes primarily from investing heavily in industry and that this can be most effectively done by a central authority. Accordingly, until recently there has been a lack of attention to the role of economic systems, the incentives they generate, and the underlying institutions. The idea persists that failure of a country to develop is primarily a matter of insufficient capital. International agencies such as the World Bank continue to base development strategies on this notion, even though it is now discredited both empirically and theoretically.¹⁰

If it is a mistake to think that economic development is primarily a matter of investment, it is even more unfortunate that the belief persists that economic development can be directed from

⁷ Aslund (2002), pp. 26, 36

⁸ Romer (1991)

⁹ Estimates of the death toll range from 6 million to 14.5 million people, primarily Ukrainians (Conquest, 1986; Werth, pp.159-168, in Courtois et al., 1999).

¹⁰ Easterly (1999)

the top down. As noted above, truly sustainable development can only occur through individuals applying their own knowledge of local circumstances, conditions, opportunities, needs, and interests. Central economic planning has no way of taking this into account.

The Politics of Soviet Central Planning and Development

Another fact of the Soviet system was the unconstrained power of the state and the destructive use of this power. These characteristics were not coincidental to central economic planning – they were inherent in it. If a centrally planned system is to function at all, it is a prerequisite that the planners hold sufficient power to enforce compliance with the plan. In a system where nearly all of the productive assets were assigned to the state, the state's authority would necessarily be of tremendous scope and power. This is both a prerequisite for and a consequence of central planning – for the greater the state's control over the productive assets, the greater its control over the lives of the citizens.

In the Soviet Union, the leaders' attempt to take total control was by design and implemented from the start. The rationale was that rapid economic and social development required strong direction from the top down. In principle, the purpose was to achieve an advanced, developed socialist state, for the well being of the proletariat. In practice, what emerged was a system run for the personal benefit of the decision makers at the top.

This was not simply a matter of ill intent or bad luck; a perpetual problem of *all* forms of government is how to constrain officials from using power to pursue their own private interests, and to generate incentives for them to act in the public's interest. This is a problem for which there is still no satisfactory solution, but the best results seem to come from strict constitutional constraints on the power of officials, combined with the ability of the citizenry to select and remove officials via mechanisms such as democratic voting procedures.

However, a necessary part of central economic planning is a lack of such constraints on the state. This was particularly true in the case of the Soviet state, which was established in order entirely to remake society. The lack of constraint led to a system that was run for the benefit of the small minority who held power. This manifested itself in several related ways: in the kinds and qualities of goods and services produced, in the use of terror and oppression, in the persistence of extreme environmental externalities, and in the absence of liability of the leadership for negative consequences of its actions and absence of legal recourse for citizens victimized by it.

Soviet production plans exhibited a strong bias in favor of goods preferred by leaders, at the expense of goods and services that would raise standards of living for the citizenry. In particular, military goods and heavy industry were emphasized, since leaders saw these as enhancing their hold on power. Consumer goods and services received less emphasis in the plans. Furthermore, when, during the implementation of plans, shortages arose in some input, officials tended to reallocate available supplies from the less favored consumer industries to the more favored military-industrial sectors. As a result, a particularly large proportion of the USSR's production went to things that had little to contribute to general living standards or real development.

The lack of constraints on government power also contributed directly to the use of terror and oppression. The use of terror as an economic and political tool included executions and concentration camps, and resulted in perhaps 25 million deaths of Soviet citizens. This use of terror generated a climate of fear that pervaded society at all levels, affecting personal relationships and stifling the development of civil society (which was officially discouraged by

the state, which sought to shape cultural and social relations as well as political and economic ones). The consequent effects on public attitudes are likely one of the many factors responsible for the poorer transition performance of the former Soviet republics, compared with the Central European transition countries. The widespread use of terror was, in part, a consequence of the system. The system was established without internal checks and mechanisms to constrain the leadership – such an environment favored those who had the greatest aptitude and willingness to employ ruthlessness, a sort of natural selection for tyrants. The system was designed this way from the start, of course, with Lenin's intentional establishment of an all-powerful dictatorship. This institutional environment of unconstrained power led naturally to systematic brutality and totalitarianism.

Measuring the effects of the Soviet System

Official Soviet estimates proclaimed high annual growth rates, exceeding 10 percent in the 1950's, and remaining above 3.5 percent through 1985. In fact, these figures are believed to be largely fabrications.¹¹ In the late 1980's, Soviet economists Khanin and Selyunin re-estimated growth rates, and found them much lower. Their work suggests that overall growth averaged at most perhaps 3.5 percent.¹² They also detected a sharp decline in growth rates beginning in about 1960, falling below 1 percent after 1975. It is likely that the Soviet economy was actually shrinking in the last years of the union; one estimate for Russia gives a growth rate of minus 4 percent for 1990.¹³ The estimating of these numbers remains a matter of controversy. Regardless, Aslund suggests that a best guess is that by the mid 1980's, per capita GNP in the Soviet bloc was at most one third that of the United States.¹⁴ OECD figures for Russia, probably the most prosperous Soviet republic, indicate a per capita GDP of 38 percent that of the United States for 1990.¹⁵ This places the Soviet Union among the lower-middle-income countries in World Bank classifications, rather than among the high-income developed countries.

Aggregate income statistics only begin to tell the story. The Soviet economy was heavily weighted towards military development, which consumed as much as 25 percent of output.¹⁶ The structure of the Soviet economy placed too much emphasis on heavy industry, and left services

¹¹ It is not possible fully to document the effects of the system with a few statistics for several reasons. First, statistical data for the Soviet Union (and the subsequent FSU countries) are notoriously inaccurate. The system encouraged false reporting at all levels, from the SOE, which misled planners as to capacity, inputs required, and output produced, to midstream planners, who reported successes whether real or imagined in order to avoid punishment, to the highest leaders, who trumpeted the supposed achievements of the economy to the citizenry and the world at large, as part of their efforts to hold and increase power. Second, Soviet national accounts measured *gross material product*, rather than GNP or GDP, and thus is not directly comparable to national accounts of western countries. Attempts by western economists to estimate Soviet production were frustrated by the lack of data and the closed nature of the society, and the estimates are now believed to have been overly optimistic. Third, converting Soviet production into monetary terms is extremely problematic. Soviet prices were set by the state, and did not reflect value or scarcity. Attempting to use world prices to value Soviet output fails to control for quality problems, which are well known to have been chronic, yet nearly impossible to quantify, since data do not exist (the success indicator problem). And the partial dependence of the official economy on an unmeasured shadow economy makes official measures even less meaningful yet. These difficulties suggest that official economic data tend to overestimate economic activity.

¹² Khanin and Selyunin (1987), cited in Boettke (1993), pp. 22-3, and Aslund (2002), p. 34

¹³ EBRD (1999), p.73

¹⁴ Aslund (2002), p. 36

¹⁵ OECD 2001, p. 10

¹⁶ Aslund (2002), p. 38

underdeveloped, helping to suppress living standards.¹⁷ Civilians faced chronic and growing housing shortages throughout the existence of the USSR.

The Environmental Consequences of Central Planning

One alleged benefit of central economic planning is that central planners will take into account negative externalities, such as environmental pollution, which would be ignored by private decision-makers in a market economy. The notion is that central planners, acting for the public good, will consider *all* effects of economic activity, and not simply their own personal benefit.¹⁸ In fact, Soviet central authorities appear to have based their decisions primarily on their own perceived benefits, and little more.

Although Soviet environmental regulations were in theory extremely stringent, enforcement was practically non-existent. The reason for this is that neither planners nor managers bore liability for harms imposed on the public, so they had little incentive to reduce them. In addition, central planners lacked good knowledge of local conditions and effects of the actions they ordered: there was no mechanism reliably to transmit information on environmental disruption back to them, nor did they have any strong incentive to rectify such problems if they learned of them. Because the negative consequences of production plans, including pollution, were borne by local citizens, not by central authorities, they were ignored.

The result was some of the most persistent and destructive instances of environmental disruption observed anywhere, ever. These included extreme cases of chronic air pollution, contamination of water and ground resources by hazardous chemical and radioactive wastes, desiccation of inland seas, and massive desertification.

In 1989, over 70 percent of surface water in the USSR was considered polluted, compared with roughly 10 percent for the United States.¹⁹ Common contaminants included metals, dioxin, petroleum, pesticides, and human waste, and resulted from untreated industrial, agricultural, and residential sources. Air pollution was likewise appalling. An analysis of 125 major Soviet cities found that air pollution was ten times higher than the maximum permissible norms, with consequential negative effects to public health.²⁰ In the 1970's and 1980's, the incidence of cancer grew explosively, with the rate of lung cancer growing at three times that of the United States.²¹ In combination with an under-funded and under-developed healthcare system,²² this environmental degradation took a human toll that is reflected in declining life expectancies from the 1960's onward (particularly for males) and third-world rates of infant mortality.²³ Soviet industry was also probably the major source of Arctic air pollution.²⁴ The overall picture is not one of development, but of callous indifference to human well being.

Soviet central planners also exhibited favoritism for grandiose development projects, which frequently proved disastrous for both people and the environment. Included among these was the development of a major cotton industry in the Central Asian republics. This was achieved by

¹⁷ World Bank (1996), pp. 32-33; Hewett (1988), p. 85

¹⁸ For one of the earliest claims to this effect, see Lange (1938)

¹⁹ *ibid.*, pp. 113-114.

²⁰ Feshbach and Friendly (1992), p. 201

²¹ *ibid.*, p. 189

²² *ibid.*, pp. 206-207

²³ *ibid.*, p. 274

²⁴ Pryde (1991), pp. 22-23.

diverting all inflows of the Aral Sea into irrigation. With essentially no inflows, the Aral Sea contracted to about one fifth its original size and salinity tripled, causing the collapse of what had been a very productive fishery, as well as microclimate changes and dust storms, which damaged natural flora and fauna in the region.²⁵ The intensive cotton monoculture also had direct side effects, including salinization and destruction of topsoil, which undermined productivity of both cotton and food crops, as well as contamination of drinking water supplies with agricultural chemicals. The result was tragic, if predictable: increasing regional rates of cancer and infant mortality, and lower life expectancies, and – eventually – falling cotton output.²⁶

A similar episode, on a smaller scale, affected the Caspian, where a large gulf, the Kara Bogaz Gol, was dammed and dessicated in a failed attempt to extract minerals, resulting in destructive dust storms. In the Belarusian Republic, attempts to drain the massive Pripyat Marsh in order to develop agricultural land generated poor quality land at the cost of the destruction of environmentally important wetlands.²⁷ These failed projects illustrate the consequences of a system in which far-removed planners act on maximal vision and minimal information, unconstrained by the rights of those for whom they claim to act. They seek prosperity and development, but generate waste and suffering.

Despite the claims of proponents, placing control of the economy in the hands of central authorities seems to have exacerbated, rather than ameliorated, environmental disruption. This is completely understandable, when one considers the lack of constraints and absence of good information facing planners. It is inherent in the system of central planning.

Abrogation of Individual Rights

Closely related to the above is the lack of legal recourse for those victimized by the system. Soviet citizens experienced a variety of injuries – from terror and oppression, through sub-standard consumer goods and services, to environmental degradation. Whether the harms inflicted were intentional, as in the case of terror, or accidental, as in environmental disruptions, citizens had little opportunity to seek redress. Conversely, leadership bore little liability for their actions. This is an unsurprising result, an implication of the absence of constraints on power needed for central planning to function. Without liability, leaders were able to get away with behavior that seems completely irresponsible. The Chornobil nuclear disaster of 1986 provides a number of examples. The RMBK-type reactors in use there were designed and built without containment domes – standard safety equipment in the west.²⁸ Such equipment could have reduced the damage done by the accident, but had not been included since they contributed nothing to operation of the plant and were primarily for the protection of those living in the vicinity. Once the accident had occurred and its extent understood by the authorities in Moscow, their subsequent actions were irresponsible and callous. In their efforts to cover up the extent of the accident, the authorities permitted the May 1st Labor Day parade in Kyiv to go ahead as planned, assuring participants that the situation was safe – even as windblown contaminants were settling on the city. Similarly, authorities ordered brigades of cleanup workers into the power plant without adequate protection, subjecting them to near certain illness and death. While abuse of power and irresponsible behavior occur in any system, the institutions of central planning –

²⁵ Pryde (1991), pp. 224-226; Micklin (1988).

²⁶ Feshbach and Friendly, pp.76-82

²⁷ Pryde (1991), pp.202-204

²⁸ Pryde (1991)

particularly the centralization of power – led to an excess of such problems. The inherent difficulty of suing government, as opposed to private violators, made it extremely difficult for victims to receive justice for wrongs done. And this in turn made it more likely that such wrongs would occur.

These political consequences are not, strictly speaking, the results of central planning *per se*. Similar effects can be seen wherever there is concentrated, unconstrained political power and lack of protection for the rights of the individual. However, poorly constrained government is inherent in central economic planning, with its system-wide hierarchical decision making and enforcement. The command economy necessarily entails strong, centralized political power, and with it the lack of respect for individual rights and the interest of the public, and emphasis on the interests of the leaders.

Soviet development of nuclear power is a history of sacrifice of human well being in the name of development. Soviet reactor design ignored safety measures standard in the west.²⁹ Once again, planners bore no liability for risks imposed on the public, hence there was little incentive to incorporate devices to reduce these risks. The catastrophe at Chornobil was a consequence. So too was the less well-known accident at Kyshtym (near Chelyabinsk) in 1957, which resulted in the evacuation of more than 10,000 people and the contamination of approximately 900 square kilometers. Inattention to nuclear safety included widespread improper discarding of nuclear wastes, such as in an unprotected dump near Ust-Kamenogorsk in Kazakhstan and even open-air dumping in Lake Karachay, near Chelyabinsk.³⁰ These actions were again reflected in above average cancer rates for people living in the afflicted areas.

The human toll of the system was not entirely unintentional, of course. Soviet use of terror as a normal day-to-day tool of policy was brought to its pinnacle by Stalin, but its use began from the start of the Bolshevik revolution, and continued until the demise of the union. The numbers are, again, difficult to calculate. It is likely that the number of civilians killed in the course of imposing policy exceeded 20 million.³¹ Countless more were deported to Siberia and Central Asia, often to prison camps. Much of the labor power used in developing the Soviet economy was essentially slave labor, forced to work in horribly inhumane conditions.³² Additionally, the system exacted a toll on all members of society, in the form of lack of freedom and constant fear of arbitrary punishment. The constant threat of terror prevented the development of civic culture, and led to widespread cynicism and apathy as a way of life.

In sum, the Soviet experiment with central planning was a disastrous failure in a number of dimensions. It gave a poor level of economic development. It sacrificed the citizens and their interests for the benefit of the planners, and generated a bloated military and an inefficient, environmentally disruptive industrial structure. It permitted politically powerful elites to use the state for their own purposes, and to callously ignore individual rights and to employ terror on a massive scale. This legacy of inadequate development, environmental disruption, totalitarianism, and a dispirited citizenry is directly attributable to the political and economic institutions of the system. The Soviet experiment should serve as a warning, an example of how *not* to develop.

²⁹ Pryde (1991), p. 51

³⁰ Feshbach and Friendly, pp. 175-178

³¹ Courtois et al., 1999, p. 4

³² Werth, pp. 203-205, in Courtois et al., 1999

Transition: Incomplete reforms

The contradictions of the system made it unsustainable. Gorbachev's attempts to salvage the system through marginal reform failed to make it sustainable, and in 1991 the Soviet Union was abolished. The independent states resulting from this breakup have embarked on a variety of transition paths. This section briefly surveys the course of Russia and Ukraine.³³

The World Bank advocated a series of steps for reform, beginning with liberalization and macro-stabilization, followed by privatization, followed in turn by deeper institutional reform.³⁴ To some extent, Russia and Ukraine followed this path, but in both cases reform remains incomplete and their experiences show the difficulty of implementing real reform in the face of politically powerful, entrenched elites.

In both countries, there has been substantial liberalization. Most prices have been freed from state control, borders are relatively open to trade with the west, and start up of new firms is relatively well protected, compared to Soviet times. As a result, there has been a huge improvement in both the quantity and quality of consumer goods and services, and domestic production has been growing.

Both countries also suffered initial bouts of hyperinflation, but subsequent relatively sound central banking policies tightened the money supplies and brought the problem under control. Both countries have also wrestled with government budget deficits with some success. In Russia this was achieved in large part by simplifying and reducing taxes, including the introduction of a flat income tax of 13 per cent, which reduced incentives to under-report, cut corruption, and increased government income.³⁵ Thus the first step of the reform formula has to a considerable degree been implemented.

The second stage, divestment of state assets has, however, been less successful. Russia initiated a mass voucher privatization, followed by a "loans for shares" scheme. In both schemes, enterprises went into the hands of insiders, the so-called oligarchs. Ukraine sold SOEs in non-transparent deals, mostly to politically connected insiders. The record suggests that such insider privatizations do not lead to much enterprise restructuring or improved performance, at least in the short-term.³⁶ Nevertheless, privatizations seem to have led to market competition among oligarchs, which is beginning to yield economic improvement, and certainly represent an improvement on the old SOEs.³⁷ In Ukraine, however, the state has retained many of the largest industrial enterprises, as well as the inefficient coal mining industry, all of which perform poorly and remain a burden on the economy. Despite these problems, in both countries the private share of GDP has climbed – to over 55 percent in Ukraine and 70 percent in Russia – suggesting a successful shift towards a decentralized market economy.³⁸

³³ The Russian and Ukrainian Republics were the two most populous and economically important republics of the USSR. As independent countries, they have subsequently had somewhat similar, although distinctive, transition paths. Disappointingly, both have performed below expectations. However, in both cases, there is reason for optimism, and both provide important lessons for development policy. For a useful survey of the experiences of the European transition countries in general, see Svejnar (2002).

³⁴ World Bank (1996), p.9

³⁵ See e.g. Murdock (2002)

³⁶ World Bank (2002), pp. 71, 74, 76

³⁷ Aslund (2002), pp. 297-300

³⁸ EBRD (1999), p.24

Perhaps most important, the transition has shown the need for fundamental institutional reform, particularly in the areas of protecting property and other individual rights, and dismantling protection for the remaining SOEs. Weak protection of rights remains a barrier to the development of new enterprises and to inflows of capital by foreign investors, both of which are crucial to economic growth. Absence of an impartial legal system and poor constraints on government power have led to an environment in which rent-seeking and corruption are endemic.³⁹ Also, continued subsidies and protectionism for unproductive state enterprises has squandered scarce resources and reduced economic growth.

This need for institutional reform points out a fundamental problem of transition prescriptions: the people in power, who have the greatest ability to implement needed reforms, are often the greatest beneficiaries of the status quo. Those in power are at least as likely to oppose or subvert successful transition as to foster it, since they face the best opportunities for rent-seeking. For example, in Ukraine, the reformist Yushenko government instituted a series of serious programs designed to clean up corruption in such areas as the energy sector and privatization. While these reformers were quite popular among the citizens, they aroused the hostility of the oligarchic clans and the communists, all of whom were primary beneficiaries of corruption, with strong ties to the president and to the Verkhovna Rada, Ukraine's national legislative body. These politically powerful forces were able to bring about the downfall of the government, despite popular sentiment in its favor. (Even so, many of the reforms put in place seem to have survived and taken effect.)

The effect of transition on human well being has been mixed. Repression has been greatly reduced, although elements of authoritarianism remain in both countries. The quantity and quality of consumer goods has increased, both from domestic and imported sources. Markets and prices have become important determinants of economic activity, resulting in a reallocation of activity from the overdeveloped heavy industrial sector towards services and light industry. This restructuring is necessary for a sustainable economy, but is not painless. Both countries experienced sharp declines in GDP over most of the first few years of transition, a characteristic common to all of the FSU and Eastern European transition countries. However, unlike faster reformers such as Poland and Hungary, the decline in these countries has been prolonged, with Russia first showing a positive growth rate in 1997, and Ukraine in 2000. This may be attributable the deeper and more rapid institutional reforms in the better performing countries.⁴⁰ Both countries have also seen a sharply growing inequality in incomes over the transition period, with Gini coefficients rising from about 0.25 to above 0.40.⁴¹ Among the current losers in transition have been workers who have remained tied to the stagnating state sector, facing arrears and unemployment. Environmental quality has tended to improve over time as well, in terms of reduced pollution, as the old state industrial sector shuts down. It remains a serious problem, however. Additionally, both countries have large shadow economies. Much of this is legitimate productive activity, moved underground in response to poor protection of property rights in the official economy. Since it generates real value added it is welfare-improving.

³⁹ Rent-seeking is the process by which businessmen seek to increase their profits through political influence (garnering the rents available from the use of the state's monopoly on power) rather than through market competition. See e.g. Tullock et al. (2000).

⁴⁰ Svenjnar (2002), p.10

⁴¹ The Gini coefficient measures the

For both Russia and Ukraine there is reason for optimism. Despite the expansion of corruption and the incompleteness of reform, it is probable that reforms have been sufficiently deep, particularly in Russia, that the countries will develop into modern market economies. Although reforms have been partial and insufficient, they have generated success, including recent growth, and this success may be self-sustaining. It seems extremely unlikely that anything akin to the old Soviet system could be reborn, as reform has gone too far, and nostalgia for Soviet times is concentrated only among the oldest. It is not unthinkable, however, that a system of rampant corruption could be institutionalized, or that some other form of authoritarian system could emerge. In this regard, Ukraine seems worse off than Russia, where capture of the state by oligarchic clans is pervasive. Still, rent-seeking opportunities seem to be declining, and public attitudes and expectations are shifting as the memory of repression declines and citizens become more aware of what constitutes a normal, successful society.⁴² Given all this, it seems likely that reform will continue. The pace and degree of success will depend on unpredictable political factors, and there are no guarantees of success, but there is certainly reason to be hopeful.

Lessons for development – the dangers of central planning

Central planning in the USSR resulted in a seemingly endless stream of contradictions. It generated rapid “development”, of a sort, through the establishment of a large industrial and military infrastructure. Some of this even “trickled down” to the citizens, particularly in terms of such things as literacy, electrification, and access to free health care (although this last fell badly into decay over the course of time). But it also generated excessive pollution, waste, and environmental degradation, which took a measurable toll on human health. Meanwhile, much of the development was channeled into nonproductive or even counterproductive areas, particularly the enormous post-war military infrastructure. It also did immense harm to public attitudes and civic culture, and established the seeds for widespread corruption, all of which have undercut the ability of the post-Soviet transition countries to develop the informal institutions of trust and cooperation on which the formal institutions of market development depend.

The Soviet experience clearly highlights the danger of central planning as a development strategy. These dangers are twofold: economic and political. From the economic standpoint, central planning does not deliver rapid development. Whilst it can deliver large-scale industrialization and can mobilize huge amounts of resources, it is unable to acquire and utilize dispersed information, so it does not, indeed cannot mobilize those resources rationally or efficiently. The resulting economic structure is wasteful and unsustainable, and much of the output reduces rather than adds value. Worse, there is no systematic feedback to correct such mistakes, so they persist and compound one another, leading to a cycle of destruction.

Politically, central planning is inevitably hierarchical, with an extreme concentration of power at the top. Whilst all political systems are subject to corruption and abuse, the extent of such problems imply that a Soviet-type system should be particularly subject to systematic abuses of individual rights, to serving the interests of politically powerful elites, and to neglect of the interests of the real constituents, the citizens. The Soviet experience was the principle-agent problem writ large, in which the agents openly sacrificed the principles for their private benefit. Again, the message for thinking about sustainable development is to avoid establishing agencies and institutions that would be subject to capture and exploitation by elites and special interests.

⁴² Aslund (2002), pp. 453-456

Decision makers considering strategies for sustainable development should be extremely wary of establishing systems that rely on the judgement of central planners in place of the dispersed decisions of individuals operating within frameworks of property rights and the rule of law.

The transition experience also provides a number of lessons for development. Perhaps foremost among these is the difficulty of reforming an entrenched system, even when its explicit structure has collapsed. The persistence of politically powerful elites and the expansion of rent-seeking in the face of reform, illustrate how institutions and attitudes can be locked-in and difficult to change. Decision makers considering development strategies should think very carefully before experimenting with institutions and policies that establish concentrated political power. Such experiments not only are likely to have unintended negative consequences, but once established are difficult to reverse. It is very difficult to dislodge entrenched interests supportive of the status quo.

Another lesson seems to be that in reforming an economic and political system, rapid change is important. But even more important is the establishment of good institutions; well defined rights to private property, an impartial legal system to enforce property rights and contracts, and a properly constrained government. Evidence from other transition countries seems to suggest that faster reformers in these dimensions have better subsequent economic performance.⁴³

In a well-functioning market system, actors have both the incentive and knowledge to minimize waste and harm, and to maximize the value of economic production. Under a properly constrained political system, agents – both public and private – are liable for injuries; this reduces the likelihood of abuse of others, whether intentional (such as torture) or inadvertent (such as pollution). In the words of Winston Churchill, “Democracy is the worst form of government yet invented except for all the others.” Whilst a market system with democratic government may not be without problems, at least it provides mechanisms for resolving these problems. Central planning does not.

⁴³ Svejnar (2002), p.10; World Bank (2002), p. 16

References

- Aslund, Anders. 2002. *Building Capitalism: The Transformation of the Former Soviet Bloc*. Cambridge UK: Cambridge University Press.
- Boettke, Peter. 1993. *Why Perestroika Failed: The Politics and Economics of Socialist Transformation*. London: Routledge.
- Conquest, Robert. 1986. *The Harvest of Sorrow: Soviet Collectivization and the Terror-Famine*. New York: Oxford University Press.
- Courtois, Stephane, et al. 1999. *The Black Book of Communism: Crimes, Terror, Repression*. Cambridge MA: Harvard University Press.
- Easterly, William. 1999. "The Ghost of Financing Gap: Testing the Growth Model of the International Financial Institutions." *Journal of Development Economics* 60(2) 423-438.
- EBRD. 1999. *Transition Report 1999: Ten Years of Transition*. London: European Bank for Reconstruction and Development.
- Feshbach, Murray, and Alfred Friendly, Jr. 1992. *Ecocide in the USSR: Health and Nature Under Siege*. New York: BasicBooks.
- Goldman, Marshall I. 1972a. "Externalities and the Race for Economic Growth in the USSR: Will the Environment Ever Win?" *Journal of Political Economy* 80(2). (March/April): 314-327.
- _____. 1972b. *The Spoils of Progress: Environmental Pollution in the Soviet Union*. Cambridge MA: MIT Press.
- Gregory, Paul and Robert Stuart. 1997. *Comparative Economic Systems*. Boston: Houghton-Mifflin.
- Hewett, Ed A. 1988. *Reforming the Soviet Economy: Equality versus Efficiency*. Washington: Brookings Institution Press.
- Kneen, Peter. 2000. "Political Corruption in Russia and the Soviet Legacy." *Crime, Law and Social Change* 34 349-367.
- Kornai, Janos. 1992. *The Socialist System: The Political Economy of Communism*. Princeton: Princeton University Press.
- Lange, Oskar. 1938. "On the Economic Theory of Socialism." In Benjamin Lippincott, ed. *On the Economic theory of Socialism*. 1938 (reprint 1964). New York: McGraw-Hill.

Micklin, P. P. 1988. "Desiccation of the Aral Sea: A water management disaster in the Soviet Union." *Science* 241: 1170-76.

Murdock, Deroy (2002): "Russians Do Taxes Right," *National Review Online*, March 1, at: <http://www.nationalreview.com/murdock/murdockprint030102.html>

OECD. 2001. *Transition at a Glance: 2001 Edition*. Paris: Organization for Economic Cooperation and Development.

Pryde, Philip R. 1991. *Environmental Management in the Soviet Union*. Cambridge UK: Cambridge University Press.

Romer, Paul. 1991. "Increasing Returns and New Developments in the Theory of Growth." In *Equilibrium Theory and Applications: Proceedings of the 6th International Symposium in Economic Theory and Econometrics*. William Barnett et al., eds. Cambridge, MA: Cambridge University Press.

Svejnar, Jan. 2002. "Transition Economies: Performance and Challenges." *Journal of Economic Perspectives* 16(1) 3-28.

Tullock, Gordon, Arthur Seldon and Gordon Brady (2000): *Government: Whose Obedient Servant?* London: Institute of Economic Affairs.

World Bank. 2002. *Transition, the First Ten Years: Lessons for Eastern Europe and the Former Soviet Union*. Washington: World Bank.

_____. 1996. *World Development Report 1996: From Plan to Market*. Oxford: Oxford University Press.