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NCSEER NOTE

This Report is one of a series of papers prepared in an interdisciplinary research project on the political economy of the USSR, presented at a workshop in March 1989, and in most cases updated since then. Almost all of the papers will be published by Cambridge University Press in a volume entitled "Political Control of the Soviet Economy", David R. Cameron and Peter Hauslohner Eds., forthcoming.

The final version of this paper was completed at the end of March 1990, just before the first appearance of the 400 and 500 day programs of "transition to a market economy." In the succeeding eight months the Soviet discussion has focused on issues of "stabilization of the market" and "transition to a market economy," leading to the recent, rather vague, compromise document "Basic Provisions for Stabilization of the National Economy and Transition to a Market Economy" presented by Gorbachev to the Supreme Soviet on October 19, 1990. Here the focus is on radical decentralization and denationalization of the economy, allowing markets to operate within an All-Union, regulated framework. Planning is nowhere mentioned, despite its prominent place in the earlier discussions of Perestroika. Indeed, "regulation" is apparently coming to replace central planning as the primary economic role of the state. That, however, was not yet the case in early 1990, when this paper was written, and still does not seem to be fully accepted within the Ryzhkov government or the central planning organs. The theoretical and practical issues discussed thus remain relevant, even if the attempt to implement the vision of future Soviet planning outlined here is less likely than it appeared in April 1990.
Since 1 January 1989 the Law on the State Enterprise, the centerpiece of Gorbachev's reform of the State economic mechanism, has encompassed the entire economy. Although not all supporting reforms and changes in the economic system are developing as initially envisioned, and indeed the law is largely honored only in the breach, this key legal step in the attempt to change the Stalinist economic system formally was taken on schedule. It signaled the continuing seriousness of the attempt to abandon the "Command—Administrative" mechanism through which all economic activity had been planned and controlled. Yet for all the changes and talk of radical economic reform, Gorbachev and the Soviet Union remain firmly committed to the concepts of "central economic planning" and the maintenance and strengthening of effective central control over overall economic activity and development. Thus this retreat from the "command economy" is to be accompanied by a strengthening of the effectiveness of centralization, of central planning and control over the most important aspects of the economy while relinquishing direct management of microeconomic detail. In Gorbachev's words, "financial centralism" is to replace the traditional "administrative centralism." Yet despite the many changes in institutions and procedures, and the still more voluminous discussions of both the old and the new proposed economic mechanisms, very little has been said about what constitutes "effective centralization" or about what is to become of "central planning," still considered a key distinguishing characteristic of a Socialist economy.

The current Soviet debate seems to take "central planning" as a concept and process in no need of definition, explanation, and/or elaboration. Indeed, it is most frequently
invoked as an clear desideratum, conferring advantages so obvious as to require no specification. It is mentioned as an all—powerful tool, waiting to be properly applied before it can yield its valuable fruits. Thus it is only necessary to choose the correct tasks for planning, invariably specified in terms of the product of the planning process, i.e. the objects planned and the plans produced, in order for it to become a powerful instrument for rapid social and economic development and the achievement of true modernization.

Indeed, as 1990 began the focus of the planning discussion was on planning the transition to a "regulated Socialist market economy" as envisioned in the government document presented by Prime Minister Ryzhkov to the Congress of Peoples Deputies on 13 December 1989.5

Of course, for the true benefits of planning to be realized, the economic mechanisms for implementing plans must be brought into consistency with the objects of planning, allowing planners to focus on their proper tasks. This latter requirement seems to be the primary focus of almost all discussion of the radical reform [perestroika] of the economic system, both in the Soviet Union and among observers of the system in the West. The absence of discussion of central planning per se, despite its proclaimed central position and key role in the reformed Socialist economy, is perhaps somewhat surprising yet is also indicative of the absence of an intention to change the fundamental approach, methodologies, and procedures of traditional central planning. Instead it is to be reoriented, its focus shifted and narrowed, in order to increase its effectiveness and its positive impact on the development of the Soviet economy.

Thus we see a discussion of planning only in the most general terms, and almost exclusively dealing only with changes in the final product of the planning process.6 No longer will central planning be concerned with the detailed assignment of annual production and distribution tasks to almost all agents and organizations in the economy. Rather it will limit itself to determining long and medium term goals, including the general directions, structural proportions, and indices of economic development, and then deriving
guidelines, indicators, and other "economic levers" that should "steer" operational
economic organizations and agents toward fulfillment of the appropriate aggregate
targets/goals. It aims to provide the centralized, conscious determination of objectives,
increasing the control over their formulation by the central authorities, while decentralizing
the process of attaining those goals, the process of plan implementation. But success in
this endeavor depends critically on the new economic mechanisms of Perestroika working
properly, so that there are indeed economically autonomous, self sufficient, and materially
responsible organizations capable of being "steered" by "economic levers" toward the
attainment of centrally determined objectives.

Here it is becoming increasingly clear that the overall economic reform has not
succeeded in materially changing the economic environment in which plans are formulated
and implemented. In the particularly critical areas of price reform and wholesale trade,
the cornerstones of any socialist market mechanism, the necessary changes have been
repeatedly put off or watered down, enterprise self—financing and autonomy is still largely
a fiction despite greater enterprise discretion with respect to contract and assortment
choice and wage fund allocations, and operational planning now revolves around a
"contracting campaign" [dogovornaia kompaniia] rather than the traditional "indent
campaign" [zaiavochnaia kompaniia]. Hence the new plan instruments, the objects of the
"reconstructed" planning process, are forced to assume the characteristics of the old
detailed directive—command plans that they were to replace. Yet these new, less direct,
instruments are weaker and less able to control behaviors and outcomes, with the result
that in 1989—1990 the center steadily lost control over the economy.

The lack of a working substitute mechanism has meant that the central authorities
have been unable to loosen direct administrative control as they apparently desired, to
back off from detailed directive planning, and hence have been unable to concentrate of the
higher tasks of long—run, strategic planning as intended. As a result, work on the new 13th
Five—year Plan fell seriously behind schedule. This situation was aggravated by the fact
that the new economic instruments, the guiding economic levers, to be used in 1988 – 1990 were based in the indices of the Twelfth Five Year Plan derived under the pre-reform system, and hence failed to provide appropriate economic signals. Thus enterprises could not be given full autonomy to respond to those signals, insuring that the output of the planning process could only be different in form, but not real content, from traditional plans. Yet the autonomy which they naturally inherited from the weakening of central instruments has led to increasing inconsistencies and disruption in the process of implementing those plans. Thus the system began 1989 in a hybrid "state of transition," where very little real transition was taking place, although the intention to change clearly remained strong. By the end of 1989, however, the system was clearly suffering from disarray, reflected in dismal economic performance, with accelerating deterioration in early 1990, including falling production, increasingly open and growing inflation, and the virtual collapse of official consumers' goods markets. This deteriorating economic situation has led the Soviet leadership to both redefine the objectives of the reform and, for the first time, seriously to focus on the problem of transition to the new intended economic system. It has also in early 1990 pushed the issue of reform into the background as attention has focused on the immediate crisis and the problem of "stabilizing the market" sufficiently to begin putting real reforms in place. Thus we now see policy defined by Prime Minister Ryzhkov's six year stabilization and transition program accepted by the second session of the Congress of Peoples Deputies in December 1989.

The kind of economic system that the Soviets hope to create, together with a clear statement of the intended role of central planning in that system, was most clearly outlined in the speeches of M.S. Gorbachev and N.I. Ryzhkov at the June (1987) Plenum of the Communist Party of the Soviet Union. It is to involve: 1) an increase of central control without disruption of ongoing economic activity; 2) expansion of economic independence and responsibility of operational economic agents; 3) economic methods of control and management; 4) reorganization and simplification of hierarchical control structures; 5)
optimal integration of the branch and territorial principles of management; 6) democratization of planning and management. This economic system is to be managed through an integrated control mechanism with, again, six characteristics: 1) organic interconnection of personal, collective, and social interests; 2) a core of self-financing enterprises; 3) tight coordination of planning, economic incentives, and organizational structures; 4) organic interdependence of branches and territories; 5) fixed economic principles applied uniformly at all levels of the economy; 6) intensive, efficient expansion of production that responds flexibly to changes in the economic environment. The economy is to be integrated, and these principles to be maintained, through properly oriented, increasingly effective central planning.

This emphasis has continued in the Abalkin—Ryzhkov transition program, hereto the only systematic updating of the conception of the reform and the type of system to ultimately result from Perestroika. It was contained in the first section of Leonid Abalkin's discussion document presented to the Scientific Conference on Radicalization of the Reform in Moscow at the end of October 1989. This document paints a picture of a more liberal, market-oriented system than that originally envisioned, yet emphasizes the key role of the central authorities particularly with regard to long run social and economic planning. The critical characteristics of the vision are: 1) a "multiplicity of forms of ownership" subject to "effective state regulation;" 2) a "labor basis" for all property, production and distribution; 3) the "market as main coordinator of social production," including a labor market with social guarantee of employment; 4) a developed system of social guarantees, eliminating the pain of economic failure; 5) planned state regulation of the economy, including the direct planning of state activities including major investment and development projects, extensive price regulation, and the regulation of markets. Particularly notable here is that the term "regulation" seems to be beginning to replace the traditional concept of "planning," though the latter still remains central to the conception of managing the economy.13
These objectives, and indeed the whole conception of Perestroika, sharply pose the question: Just how should central planning be understood in this context? What does this imply for the current practice of central planning? Do the essentials of planning, as presently understood, need to be changed, and what changes are seen as necessary? These questions naturally lead to a further set of more speculative questions. Is the proposed package of changes workable? What can we say about the economic effectiveness and efficiency of the results of this reformed planning? What further changes would improve central planning? In what areas might central planning become more effective as a result of these changes, and where might it lose its ability to have a positive impact? Can the Soviet Union gain greater central control over the parameters of performance, while increasing efficiency of implementation of centrally planned objectives through decentralization?

The purpose of this chapter is to discuss the current meaning of central planning in the Soviet Union, how that is to change under the current reforms, and what that change might mean for the functioning of the Soviet economic system. It will address these questions by first outlining the character of traditional central planning in the Soviet Union, emphasizing the logic of the traditional system and the logic of planning in that system. Next, what is known of the changes in planning and in the roles and functions of the central planning organs will be summarized, and the nature of the difficulties implementing the vision that they represent will be analyzed. In particular, the analysis will focus on the incentive requirements for effective central planning and control, through the use of indirect instruments, of the decentralized interaction of autonomous economic agents. Finally, the chapter concludes with a discussion of some implications of that argument for central economic planning, the political control of the economy, and economic performance.
THE CHARACTER OF SOVIET CENTRAL PLANNING.

Soviet central planning comprises an exhaustive effort to consciously and systematically determine both desired states of the economy, and indeed society, at various times in the future and all the specific actions required to attain those states. It is a comprehensive attempt by the central authorities to map rationally and collectively both the future and the best path for its attainment. Central planning is thus a direct substitute for the playing out of the interaction of millions of independent individual and institutional preferences, striving to replace them with consistent social preferences as a basis for determining the goals, directions, and paths of social and economic development. This means, as the Soviet literature emphasizes, that planning must be a continuous process of centrally orchestrated interaction involving explicit coordination of information collection, processing, and transfer, and of decision making processes throughout the economic system.

By virtue of its striving to make or control all significant decisions of any agent in the system, the scope of traditional Soviet central planning has been comprehensive, indeed exhaustive. Every action by any economic agent is considered, indeed captured, at least as part of an aggregate, by some part of the planning process and hence, even if only implicitly, in some section of some plan. Though most fine details, particularly with regard to implementation, are inevitably left to the discretion of low level operational subordinates, no detail is considered to be too fine to be subject to the legitimate interest and potential intervention of the central authorities. This means that subordinates cannot be in any real sense autonomous, but must be directed, often in exquisite detail, to do what must be done in order to achieve the goals outlined by central planning. Thus Soviet central planning has become inextricably intertwined with the command implementation mechanism, turning into a continuous process of explicit administrative guidance of all production, distribution, investment, and consumption.

The vast scope and comprehensive nature of central planning in the Soviet Union
imply that, of necessity, it must be largely concerned with issues of detailed coordination and physical balance, rather than the more grand issues of mapping development objectives and strategies. Rather than committing most time and effort to the determination of social preferences and the ways of best satisfying them, the planning machinery must desperately struggle with the immense problem of assigning and coordinating specific production, distribution, investment, and consumption tasks among millions of economic organizations and undertakings. Economic agents in the traditional Soviet system respond almost exclusively to commands, either direct or implicit, embodied in or derivative of the detailed economic plans to which they and their superiors are subject. Only those activities and actions mandated by the plan or instructions of superiors, or justified by the pursuit of their fulfillment, will be undertaken, regardless of what may be economically desirable or necessary. Commanded actions and objectives are pursued, including those positively disruptive of productive economic activity, while those not ordered are ignored, regardless of economic importance. The details of microeconomic coordination necessary for the smooth functioning of the system, the balancing of supplies and demands of tens of millions of goods and services across hundreds of millions of actual and potential activities, must therefore necessarily absorb the lion's share of the time and effort of Soviet central planners. Indeed, a most prominent complaint in the indictment of the traditional planning by the present Soviet leadership is that it is so swamped by detail that it is unable to adequately perform its primary task of true economic planning.

The nature of Soviet central planning puts it near one extreme of the spectrum of operations that might be called "central planning." It assumes a maximal position with regard to the tasks that central planning might attempt to accomplish. At the other extreme we find the rational, consistent budgeting of government expenditures and their coordination with various limited regulation regimes associated with the preservation of market competition, the provision of public goods, and the maintenance of certain environmental, health, safety, and welfare standards. While these activities of virtually all
governments need not be subject to central planning, they provide a natural minimal arena for its introduction.

A more ambitious form of central planning is what has been called "indicative planning" as developed by French economists. It extends the scope of planning from government expenditures and regulatory activities to state run production and distribution and, in more general terms, to the independent private sectors of the economy. Central plans in this case aim to guide and coordinate the actions of independent economic agents toward the achievement of desired objectives (a future state of the economy) by improving the information basis for independent, decentralized decisions and by manipulating the constraints faced by those independent agents through the use of financial, credit, tax and other market-oriented instruments, in particular subsidization of investment projects. Planning here is in very general, aggregate terms, often amounting to little more than predicting market developments and then nudging them in a desired direction through the consistent integration of government intentions with forecasts for the non-state sectors. Such plans are non-mandatory for the non-state sectors, and may be so even for state run operations, leaving producers, traders, and users truly autonomous and fully responsible for their own performance.

Beyond indicative planning there are varying degrees of directive central planning, under which plan targets and indices become increasingly mandatory for those organizations to whom they refer or are addressed. Economic agents subject to such planning are no longer truly autonomous, for they are constrained to behave in ways mandated by the plan and hence are no longer responsible, in any meaningful sense, for the consequences of the decisions they are forced to take. Indeed, full responsibility is usurped by the planning organs, and their administrative enforcers, who presume to know best what such, now subordinate, organizations should be doing. This is typical of state owned and/or controlled sectors subject to development planning, and reaches something of a practical extreme in the unreformed Soviet-type economy. Indeed, even where detailed
physical planning has been replaced by indirect, if still quite detailed, planning of value parameters, as in Hungary, it is fairly clear that ultimate responsibility for the performance of state enterprises and organizations resides with the central authorities and not the apparently more autonomous economic entity.\(^{19}\)

The key to the difference between indicative and increasingly stringent forms of directive central planning lies in the willingness of the central authorities (planners) to demand the fulfillment of plan indices and targets and in the share of the economy subject to such indices and targets. Where the central economic plan remains largely a suggestion to most of the economy, economic agents are autonomous and planning is indicative. Where most economic agents must strive to fulfill a plan under pain of direct punishment, they can no longer be considered autonomous and planning becomes directive. The Soviet system has been an extreme example of the latter.

The question naturally arises as to why traditional Soviet central planning should have become such. Yet exhaustive directive central planning seems an almost inevitable consequence of the logic of the Soviet system. In particular, the assumption of an elite, the Party, having unique access to a "knowable truth" about reality and the future implies that that elite is uniquely qualified to lead and direct society, including all economic activity.\(^{20}\) Hence their objectives, their preferences, should unquestionably dominate; all wisdom, and hence authority must reside in the central organs that reflect and implement the special knowledge of the Party. Thus the political leadership, and the central planning organs that serve it, must know best and must decide in great detail what society needs and what must be done to meet those needs. This logic requires that all choices and tradeoffs be made by the central authorities and/or their planners, yet they are obviously physically incapable of making them: the problem posed and the information required in a complex social economy is just too vast.

The task of organizing economic activity is thus simplified by aggregation and subdivision of the problem along the administrative lines of the hierarchy, and by
restricting the planning period. Operational plans are limited to a one year period, while much less detailed five—year plans provide a developmental framework for elaborating the one—year plans. This generates a series of tractable partial problems for those agents whose planning activities need to be coordinated and directed toward the objectives of the center. In order to maintain proper control, these subordinate organizations are placed in a hierarchical structure allowing effective monitoring through a reasonable span of control, the explicit authorization of all legitimate actions and decisions, the prevention of any unauthorized, and therefore illegitimate, actions, and the granting of reward solely on the basis of service to the objectives of the center, and not of unintended economic consequences.

In this system, planners should make all choices and commands should motivate all actions. Subordinate initiative is desirable only to the extent that it clearly furthers the attainment of planned objectives, fills in the details inevitably omitted in even the most detailed set of instructions and commands. The gnostic pretenses of the central authorities imply that any central planning must be directive and comprehensive. The inadmissibility of autonomous initiative and decisions implies further that planning must be in excruciating detail, mapping out exclusively all legitimate interaction and coordination necessary to implement the central plan. Thus the nature of Soviet central planning is a natural consequence of the logic of the traditional Soviet system.

In that system, priorities of the political leadership are maintained through a vast and complex administrative structure. This consists of a number of overlapping hierarchies that gather information, disseminate instructions, coordinate interactions, manage change, and monitor and enforce commanded performance. At the apex stand the highest government and Party organs, the Politburo and the Presidium of the Council of Ministers. The government, i.e. the Council of Ministers, and a vast array of planning and control agencies are responsible for translating the objectives and priorities of the political authorities into consistent and realizable plans. Prior to Perestroika these central
agencies comprised over twenty State Committees, functional ministries, and agencies, each dealing with a particular economic function, such as GOSPLAN (planning), GOSSNAB (materials and equipment supply), GOSSTROI (construction), GOSKOMTSEN (prices), GOSKOMTRUD (labor issues), GKNT (science and technology), the State Bank (GOSBANK), the Central Statistical Administration, the Ministry of Finance, the Committee of Peoples Control, etc. Below these central organs were over fifty "branch" ministries organized according to major product or output category. Each is further subdivided into departments (glawki; industrial associations) by region or more specific output category. Each department is in turn solely responsible for providing planning information, elaborating plans, and implementing plans and instructions within its specific "branch" of the economy. This ministry/department structure is duplicated for about half of the branch ministries (Union Republic Ministries) within each of the Republics, with the remaining All Union Ministries having no counterparts within the Republics. Finally, at the base of this hierarchy are the organizations that do the work: the actual production, construction, transportation, distribution, and trading activities of the economy. These are the associations (ob'edineniia) and enterprises (predpriiatiia) subordinate to either ministries or local governments, collective farms and cooperatives whose detailed activities must be planned and controlled by the central authorities in order to achieve the goals of the Soviet state and society.

Alongside this organizational pyramid, the traditional Soviet system has a number of parallel monitoring and control hierarchies, including the Party, the banking system, State Arbitration, Peoples Control, the materials and equipment supply system, etc. Each attempts to insure proper reporting of information and proper implementation of central instructions. They are outside the direct economic chain of command, but have a role to play in the process of planning and have important powers of investigation and intervention in the process of plan implementation. Indeed, as the logic of the traditional
system might suggest, the local Party organs are the ultimate representatives and interpreters of central priorities at the local, operational level.

The orchestration of this complex structure requires just the kind of extensive, detailed planning indicated above. The focal point of such central planning has been the apparatus of the State Committee for Planning, GOSPLAN SSSR. It is a central organ, formally subordinate to the government (Council of Ministers), with a Union—Republic structure, that apparently has very direct ties to the top of the Party hierarchy. In particular, there is a direct connection to the economic department of the Politburo and the staff of the General Secretary of the CP USSR. This gives GOSPLAN an importance far beyond that implied by its position as a State Committee of the Council of Ministers. It is the primary organ responsible for interpreting the desires and decisions of the Party and government and translating them into concrete implementable policies. Further, it plays the key role in orchestrating the entire process of detailed directive central planning, coordinating information flows and, to a large degree, determining the types of information transferred during the planning process.

Perhaps the second most important organization for traditional Soviet central planning is that of GOSSNAB. This is because the most basic requirement arising out of any attempt to plan, to prescribe the outcomes of the economic activity of all economic agents, is that of material balance. Outputs must be made consistent not only with the final demands of society but, more importantly, with the production input requirements of the agents producing those outputs. Although GOSPLAN was directly responsible for maintaining aggregate material balance consistency for about 2000 of the most important product categories, the GOSSNAB system handled, and indeed still handles, many more, including the details of sub category consistency within the product groups balanced by GOSPLAN. Indeed, the balancing of supplies and uses for almost all producers goods and services relevant to more than one branch (ministry) was, and still is, handled by some organization within the GOSSNAB hierarchy. The only exception is for products and
services whose production and use do not cross the boundaries of an administrative subdivision of the economic hierarchy. In the traditional system, branch ministries handle the coordination of production and usage of materials only relevant to that ministry's activity, and Republic and local governments handle balancing for, predominantly consumers', goods and services produced solely for use within their domain.24

The planning process has been recently described as a "virtual nonstop dialogue" among this vast network of governmental organizations, and between them and the Party.25 This dialogue revolves around the massive project of information gathering, processing, and dissemination that comprises central planning. It must begin with clarifying and elaborating objectives, a discussion between the political leadership and their central planners, and learning as much as possible about the existing state of the economy and all of its agents. The latter involves querying operational subordinates about bottlenecks, imbalances, capabilities and technologies, and aggregating their responses into manageable data. That information must then be processed in an on-going dialogue involving iterated aggregation, disaggregation, and bargaining to generate the essential elements of a plan: a description of some "best" attainable state, the intermediate steps necessary to achieve it, the actions required to facilitate taking those steps, the resources and interactions required to support planned actions and outcomes, bounds and constraints on the scope of independent decisions of subordinates, and a specification of at least some contingency measures and their supporting resources.

Once a sufficiently detailed set of plans has been elaborated, and indeed during the process of its elaboration, its various components must be accurately communicated, "addressed" in Soviet terms, to both those responsible for implementing the plans and those responsible for overseeing their implementation. This is a particularly critical process of disaggregation, one which must be sure to emphasize priorities, legitimate tradeoffs, and incentives for proper implementation performance. Finally this dialogue continues through the planning phases first of monitoring the evolution of the state of the
economy and the actions and performance of subordinates, and then of adjusting the plan
to significant changes as those are recognized.

This dialogue has a natural cyclical rhythm arising from the timing of the five- and
one-year plans. The one-year plan is the operational plan with fully elaborated detail,
and therefore the plan having a true impact on implementation behavior. Running from 1
January to 31 December, it is supposed to conform to, and update where necessary, an
aggregate framework provided in the five-year plan by filling in significant details and
operational targets and commands. The latter aims to formulate an aggregate vision of the
future and a general strategy of development for its implementation, an internally
consistent formulation of possibilities, priorities, and targets that the central authorities
hope to realize.

In both cases the planning cycle begins with a series of directives from the top
political organs outlining the goals and tasks that are then interpreted by GOSPLAN in a
set of "control figures" that specify priorities and tentative targets, and constrain and guide
other central and subordinate agencies in the planning decision making process. These
figures are elaborated in increasing detail down the hierarchy becoming more specific
targets and commands to operational subordinates. However, they are based only on prior
information available to superiors about subordinates' capabilities and therefore need not
be consistent or even feasible. Operational units are required to respond to these
assignments with more specific "draft plans" including detailed requests for the material
resources and capital inputs needed to fulfill them, thus revealing information about their
particular situations and capabilities. These responses are aggregated and adjusted by
superiors up the hierarchy, a process accompanied by intensive bargaining as the central
authorities strive for maximum performance while subordinates seek easier tasks.

The outcome is a set of control figure revisions for each of the branches of the
economy that must be made broadly consistent for a workable national economic plan, one
that then might be consistently disaggregated as specific assignments of indicators and
targets for operational subordinates. The central organs, in particular GOSPLAN and GOSSNAB, work to get at least a rough tolerable balance of supplies and demands for all products and resources as they draw up a final draft of the plan. This plan is submitted to the highest authorities; when approved it becomes a set of binding commands to the branch ministries. These are disaggregated down the administrative hierarchy into directives to all organizations at each level. This stage of planning ends with an exhaustive set of commands, targets, allocations, operational instructions, and constraints that touch on every aspect of the economic activity of the operational units at the base of the hierarchy. At that level it becomes the tekhpromfinplan and material supply plan that command all technological, production, and financial activity of each enterprise as well as its economic interaction with other organizations.27

Alongside runs a parallel process of financial planning. This is primarily handled by the Ministry of Finance, which draws up the State Budget of the USSR, including all republic and local budgets, and by GOSBANK, the sole bank in the traditional system, which draws up, among other plans, credit plans, cash plans, and the balance of incomes and outlays of households. A branch of GOSBANK controls the financial operations of each state organization. Financial planning is, however, of decidedly secondary importance since all nonprivate economic activity is, in principle, subject to direct physical planning and control. Its primary purposes are to provide a check on the implementation of plans by monitoring financial flows ("control by the ruble") and to channel and constrain non-planned economic activity in the cooperative and private sectors.28 Thus it "is to insure that individual enterprises and households . . . have enough (but not too much) money to buy the goods and services intended for them in state output and supply plans."29

By the logic of the system, money and prices must play only limited and passive roles. They are primarily used for measurement, accounting, and control purposes, though they clearly have an impact on income distribution, and a generally undesired influence on production and allocation decisions. Prices, including wages and salaries, are
administratively set and controlled by hierarchies under the direction of GOSKOMTSEN and GOSKOMTRUD respectively, or by ministries and enterprises under the supervision (kontrol') of those hierarchies. They are highly differentiated according to administrative (not economic) criteria and remain fixed for extremely long periods. They bear no real relationship to relative use values or scarcities, and they reflect central priorities only in the most aggregate terms. This is hardly surprising in view of the overwhelmingly complex task of keeping prices for some 30 million goods aligned with their true, yet constantly changing, economic values. Thus to the extent that prices and measured monetary values influence decisions, as they inevitably must in investment planning and production decisions, they cause bad choices because they provide irrelevant or incorrect information about relative values and scarcities.

Evidently the task of determining a good, let alone optimal, set of plans is overwhelmingly difficult; the information required is too vast, too delayed, and too distorted by self-interested subordinates with direct access to it, and the required calculations too time consuming, to hope for a correct solution to the problem. Thus a number of short cuts or compromises are resorted to, making the generation of a plan a feasible undertaking.

The major compromise is in aggregation of responsibilities and in the subdivision and delegation of the planning process among various central organs and subordinate organizations in the economic hierarchy. This simplifies the task of each decision maker in the process of generating the plan, but aggravates the coordination problem faced by GOSPLAN and opens the door to massive bargaining, particularly during the processes of aggregation and disaggregation. Though GOSPLAN has the formal power to command and demand in planning, it can only do so where it can observe and measure. To a great extent its decisions are thus hostage to the information that can only be provided by subordinate organizations who have a vital interest in how that information is used. Ministries can often demand resources and "get their way" by "demonstrating" the
necessity of their requests in terms of the higher objectives of the plans, though GOSPLAN has the formal power to grant or take away. 32

A further simplification is achieved through use of what has been called the "priority principle." This involves concentrating detailed attention on those sectors, products, resources, projects, and links that are considered decisive for the attainment of the key objectives, both current and developmental, of the Party and State. Where an object, action, or interaction is considered important enough, a department or special commission of GOSPLAN will concentrate sufficient effort and time to learn the true situation, capabilities and needs of relevant implementers, avoiding information distortion and bargaining problems, and hence reaching as good a decision as any agency could. 33 Of course, this means that many other areas, considered less important or pressing, must be left to the discretion of subordinate planning and implementation organs, so that those decisions are necessarily based on local information and interests.

Compromises are also made in the process of achieving consistency among objectives and among the actions and material flows required to attain, at least in aggregate, those objectives. The Method of Material Balances, the primary method for achieving the aggregate consistency of materials and equipment flows, is itself a short cut toward solving for full input—output consistency of product—detailed intersectoral balances. 34 Material balances are drawn up in $1^{1/2}$—iteration cycles of bargaining over aggregate sources and uses, with particularly detailed attention paid to priority sources and uses, at a level of the hierarchy reflecting the importance (priority) of the product being balanced. Their formation reflects two further compromises in the general process of plan formulation: the use of "technical norms" to determine needs, and the determination of final results (outputs) as a percentage increment "from the achieved level." 35 These vastly simplify, indeed make feasible, current operational planning by reducing it to linear adjustments, and then only at the margin. While most evident in the material balance planning process, these approaches are ubiquitous in all areas of Soviet planning, particularly in view of their
need to consciously, centrally force consistency and balance among all decisions due to the logic of the system and the consequent lack of properly functioning markets.

A final pair of compromises to be mentioned here flow from the inadequacy of the efforts to achieve balance and consistency. The inevitable mistakes arising from the complexity of the problem, the manipulation of information from below, and the limited time to deal with it, mean that a series of special bargains need to be struck with subordinate organizations in the process of planning. This is particularly true for agents and/or projects that have some priority. Further, as attempts at implementation reveal their problems, plans must be continually revised, opening the door to further bargaining and special deals. Thus Soviet central planning turns into a continuous process of adjusting to shocks and surprises, in no small part generated by central planning itself.36

The final result achieved by this elaborate process, a comprehensive set of Five—year and One—year Plans, the latter almost fitting into the framework of the former, is in large part the predictable consequence of widespread compromise by all parties to the process. It by and large reflects the momentum of the existing situation, generally continuing and expanding existing and similar activities, and only introducing real change where priority is sufficient for requisite information to be centrally available and therefore for the change to be strongly pushed by the central authorities, in particular the Party and GOSPLAN. Thus all are generally dissatisfied with the final product of the planning process. Yet it is that result that defines legitimate economic activity, the choices, tradeoffs, and sacrifices that must be made. It is a systematic, if changing, blueprint for the future to be attained and for the proper means for attaining it, but a highly arbitrary one with very little economic rhyme or reason.

The consequences of such planning are now widely evident and indeed are openly discussed in the Soviet economic literature and periodical publications.37 The strength of the system lies in its ability to achieve central priorities, both economic and noneconomic. It is very good at pursuing clear, well defined objectives that can be expressed in
measurable, quantitative, and communicable terms, and yield large observable changes. Such a system facilitates the massive mobilization of scarce physical resources and their exclusive concentration on achieving these central objectives. Further, their simple nature allows the generation of appropriate plans and commands and verification of their proper pursuit. Thus the system has been quite effective in attaining simple clear cut aims. The building of major heavy industrial capacities and, indeed, whole sectors, the development of an unprecedented military–industrial complex, and the response to the US embargo on high power gas compressors are examples of this effectiveness.38

However, this effectiveness is accompanied by great waste and inefficiency. As the system pursues a few priority objectives there is little control over, or even knowledge of, the economic costs involved. Commanded goals are attained, regardless of sacrifices in lower priorities, and there is virtually no way for those on top to know whether success was worth achieving. The central authorities and planners cannot monitor all important costs — in particular, true opportunity costs — yet, by the logic of the system, they are the only ones with a true interest in knowing them. In all but a very few priority areas, the central authorities, the plan, can only indicate what is desirable and what needs to be done in general terms and must leave the details to subordinates. The nature of the system isolates and blinds all agents to the consequences of their actions. Thus subordinates with no idea of true opportunity costs are forced to make decisions, in the pursuit of ill–understood objectives of superiors, that have a wide–ranging impact on other organizations in the complex economy.

As the economy grows, the problem facing central planners becomes ever more difficult due to a dramatic increase in the complexity of the economy. Successful development, industrialization, and advance of technology bring growing specialization, division of labor, and mutual interdependence of all economic units. This means an increasing number of factors that must be considered and incorporated into planning — as well as an increasing number of subordinates to coordinate toward implementation. Thus
economic development leads naturally, in a centrally planned, hierarchically managed system, to ever growing problems of economic inefficiency, a growing loss of control by the central authorities, and a steady reduction in the effectiveness of the pursuit of priorities.

A more complex economy requires a more elaborate administrative structure and hence a longer chain of command, and wider spans of control. This removes the central planners even further from real economic activity, dissipates the impact of commands and instructions throughout the hierarchy, and requires that even more be left to ill-informed and irresponsible subordinates. Objectives become more refined and harder to communicate, priorities proliferate, coordination becomes more difficult, and information gathering, verification and monitoring become much harder. New opportunities and difficulties arising in the system become increasingly difficult to keep track of, and hence tend to be ignored with growing frequency. The few priorities whose implementation can still be insured become progressively less important to the overall functioning of the economy, as they become a smaller part of the total economy. Hence the central planners tend to lose control, and thus effectiveness in achieving their priorities. Further, all of the causes of inefficiency are aggravated by the growing complexity that accompanies, and indeed defines, successful economic development.

These problems can be seen reflected in the massive catalogue of complaints about planning in the preamble to the July 1987 Decree of the reform of planning. Existing central planning is accused, among other failings, of having a weak scientific basis, a merely subjective approach, of failing to achieve balance and proportionality of development, of a lack of attention to financial flows, of low plan discipline, of undertaking massive, often unjustified, correction of plans, and of generating endless decrees on specific problems causing it to slight its true responsibilities. GOSPLAN is accused of usurping the tasks and responsibilities of ministries, Republic and local governments, ignoring long-term planning and the planning of technological development for other organs' operational tasks. It is further castigated for ignoring social, regional and foreign trade planning, failing to
properly organize the improvement of the economic mechanism, and using methods that deprive subordinates of initiative and responsibility. These, in particular, are the shortcomings that radical economic reform of central planning is supposed to rectify, failings that seem a natural consequence of the character of Soviet planning as it has existed hereto.

THE INTENDED FUTURE OF SOVIET CENTRAL PLANNING.

In their speeches to the June (1987) Plenum M.S. Gorbachev and N.I. Ryzhkov proposed to radically alter the character of Soviet central planning in order to strengthen its impact and improve the efficiency of the Soviet economy. Their proposal, as elaborated in ensuing documents and discussions, essentially involved standing the logic of Soviet central planning on its head, fundamentally altering its character. Rather than attempting to fully replace the preferences and interests of individual producers and consumers with centrally determined objectives, planning is to accept those as basic, and in some cases decisive, with respect to current operations and the ongoing functioning of the economy.

Rather than trying to derive a comprehensive, balanced plan of operation for all agents, central planning is to sharply restrict its scope, and focus on long run socio-economic development and the fostering of innovation and technological change. Central preferences are to be decisive only with respect to structural and technological development for the future, and to have a current impact only through their influence on the economic environment of operational economic agents. Thus Soviet central planning should move closer to the Western conception of indicative planning, with elements of the command mechanism, and its detailed directive planning, relegated to a few key, "structure forming" [struktuuroobrazuiushchi] products, investments, and development projects, and to determining the financial environment of operational units.

This new conception of central planning still strives to maintain effective central
control over the functioning and development of the economy, indeed to a greater degree than any form of indicative planning has hereto succeeded in maintaining. Even in the more radical formulation of Abalkin (1989), the emphasis is on planned state management and regulation of markets. By focusing on strategic questions and long-term aggregates, planners will no longer face the same unmanageable volume of detailed information, and thus should be able to consider more alternatives in developing a balanced, and hopefully optimal, plan. In such a plan only the key, structure-forming products and resources need to be balanced, and only the foundation of new sectors, technologies, and infrastructure need to be planned in any detail. Thus the focus of physical planning should be reduced to major interbranch and interregional investment projects and to changes in fundamental technologies and capacities.

The details of current production, investment, and trade planning, as well as those of implementation previously included in central plans, are now to be left to subordinates. Inconsistencies with social, central preferences, and the potential for chaos, are to be avoided by providing proper incentives and appropriate, largely financial, constraints on their activities in order to induce autonomous, self-motivated agents to make decisions consistent with those preferences. This is to be accomplished through the introduction of a new economic mechanism, revolving around newly created "Socialist markets" in place of the command implementation [kommandno-administrativnyi] mechanism. These markets are to solve the on-going coordination problem within parameters set by the center, and are to be subject to central guidance through the use of four broad classes of "economic" instruments. Current planning will thus be replaced by medium term planning of these guiding and constraining instruments, leaving economic outcomes to be determined by the autonomous responses of economic agents to these instruments.41

These changes are clearly driven by a desire to make central planning both more effective and more efficient. They make the task faced by central planners more manageable and allow them to avoid being swamped by operational detail. But they also
make central plans more aggregate and abstract, and less closely related to real economic activity. They can allow the maintenance of overall, albeit indirect, control only if the new economic mechanism [khozmechanizm] effectively coordinates microeconomic behavior and channels it in the proper, centrally desired, direction. The accompanying change in economic mechanism is also to allow efficient implementation by permitting subordinates to take account of local information, costs and opportunities, in their response to the indicators and signals used by the central authorities to guide economic behavior. Thus it is hoped that the new economic mechanism will remove the need for the detailed planning of microeconomic balance that occupies the lion's share of planning time and effort in the traditional system.\textsuperscript{42}

To realize this radical change in the character of central planning, the horizon of operational planning is to be effectively restricted to the medium and long term. This new perspective is embodied in a three layered set of plans: (i) the long term Conception [Kontseptsia] of Economic and Social Development with a 15 - 20 year horizon; (ii) the Basic Guidelines [Osnovnye napravleniia] of Economic and Social Development for 15 Years; (iii) and the State Five—year Plan of Economic and Social Development of the USSR. Taking the place of the present detailed operational one—year plan in the efforts of central planners is the new five—year plan. It is to absorb the attention and effort formerly accorded current [tekushchee] planning, becoming operational in a looser, more indicative sense. Similarly, the 15—year Guidelines are to adopt the role of the former five—year plan in providing, it is hoped, a consistent framework for the development of successive five—year plans. Finally the Conception of Economic and Social Development is to play the visionary role that had been intended for "perspective [perspektivnoe] planning" in the past, though it had never been quite realized.\textsuperscript{43}

The cornerstone of the new approach is the abandonment of current, one—year planning by central planners from GOSPLAN through the ministries. This is what frees the central organs to tackle broader strategic development tasks. Detailed current plans,
reflecting all the activity of every economic agent and resolving the microeconomic coordination problem, are still to be drawn up, but now only by those economic agents themselves. Thus there will be a one-year plan, but it will be merely an aggregation of the individual plans of producers, traders, and users in the economic system.

The internal consistency and feasibility of such a plan, i.e. the proper coordination of individual plans, is to come from three sources. First, operating agents are to orient their decisions toward the meeting of non-binding guidelines, called control figures [kontrol'nye tsifry], derived from the state five-year plan. These comprise a set of consistent non mandatory targets and efficiency indicators that, if pursued, should coordinate the decisions of the pursuing agents. Thus they form an indicative plan, in the usual sense, that is to be used as an input to local planning. They also provide a basis for maintaining the consistency of annual plans with the annual breakdown of the five-year plan.

The second source of consistency in this decentralized current planning is to be the equilibration of the "socialist markets" that are to be created as part of the new economic mechanism. The basis for each individual unit's plan is to be a set of commercial [khoziaistvennye] and state [gosudarstvennye] orders [zakazy] that the organization has received for its goods or services. On the basis of existing and anticipated orders, and its own needs, the unit is to place (commercial, by definition) orders with other suppliers, including intermediate organs of state supply, to meet its input requirements. It is the portfolio of such orders that forms the core of an organization's current plan and substitutes for the detailed material balance planning that dominated most previous effort of central planners. Some direct centralized materials balancing will, however, still take place in the formulation of state orders [goszakazy] for the production and allocation of the few most important, structure determining products and resources, and in the determination of limits [limity] on some centralized materials and investment allocations. These are to come from a detailing of the annual breakdown of the aggregate balances of
the five-year plan. State orders are eventually to be placed through competitive bidding, while limits should be restricted to allocations for long run developmental projects, and thus should not disrupt the functioning of the socialist market.

Finally, consistency is to be fostered through the proper setting of parameters, called economic normatives [ekonomicheskie normativy], regulating financial allocations within autonomous operating organizations and the financial relations of those organizations with the state, republic, and local budgets. These parameters are to be fixed in advance for a five year period by the central Five-year Plan. Their purpose is to properly align the incentives of subordinates with the objectives of the planners by rendering locally profitable that which is centrally desired, and penalizing financially those decisions and actions that the center finds undesirable. The effectiveness of these instruments clearly depends on economic agents becoming primarily motivated by the prospect of earning disposable income and/or profits, that is on the development of market [tovarno—denezhnye] relations and motivations. Thus the proper functioning of the new economic mechanism is something of a precondition for the effective, and hopefully efficient, decentralization of current planning.46

The truly operational plans of all agents, outlining all production, trading, technological, investment, financial and social development activities during the course of a year will be self-generated. These plans are to be drawn up in the preceding year on the basis of the enterprise five-year plan as well as control figures, state orders and limits, and economic normatives derived from the annual breakdown of the State Five-year Plan. This a—priori plan information, including all central specifications and revisions, is to be available by May of the preceding year, at which point the agent/enterprise can begin to systematically build up its portfolio of orders, the core of its annual plan, for the following year.47 To some extent this will involve specifying the terms of long—term agreements, though a major part of the task must involve searching for both customers and suppliers. The process must also include the determination of investments needed to meet anticipated
future demand, the securing of credit and the allocation of own financial resources, present and future, to implement them, contracting for investment inputs and the services of appropriate project-making, design, engineering, and construction organizations in order to realize those investments. This process is to be completed by the end of September so that a complete, feasible plan might be reported to superior, in particular financial, organs so that they might aggregate that information into plans and balances at higher levels and check for their consistency. The resulting higher level annual plans provide an information base for central planning, an input into determining future specifications of, and changes in, central control variables (economic levers), in particular credit and investment decisions. This largely self determined annual plan is in a sense mandatory for the enterprise in that it is built on legally binding contracts, with centrally enforced specific penalties and sanctions for their violation. 48

The core of central economic planning in the new reformed economic mechanism is to be the development and supervision of the State Five-year Plan of Economic and Social Development of the USSR. The concept of planning embodied here is also dramatically different from that of the traditional system. First, the central plan is to be no longer mandatory throughout the economic hierarchy, but is to be only truly binding on the central authorities themselves. Subordinates are to draw up their own five-year plans, again through an iterative process of interaction with superior and central organs, taking account of central guidelines and the levels of centrally set economic parameters and constraints, while providing much of the information used to set those parameters and guidelines. The philosophy of the plan is no longer to command, but only to constrain and to provide general guidance as to direction of change and development. As a result the scope of material balancing will be sharply restricted. Eventually only some 100 to 200 key aggregate product groups are to be balanced by GOSPLAN and the central organs of GOSSNAB, rather than several thousand as is now done. Instead of determining gross demand for output, central planning is supposed to focus on the final result of its use, in
particular on economic structural and technological development and social welfare. Further, final results of operational significance, i.e. in the five-year plan, are to be explicitly measured in value terms, rather than pseudo-physical gross aggregates as at present.

Central planning is also to withdraw, to a large extent, from one of its primary interests and sources of power in the traditional system, the planning and allocation of investment resources. Most investment planning will now become a prerogative of the operational organizations for whom the investment is to be made, with its financing to come from the resources of that organization or repayable credit. Thus the ability planners, especially GOSPLAN, to directly affect the structure of the economy through the granting of free investment funds and resources will be sharply diminished. Only where truly new structures, technologies, and/or organizations are being formed will the central planners make the direct decisions, and then only if it does not fall completely within the purview of some lower level organization within the hierarchy. Thus the central plan will concentrate on macroeconomic proportions, the balance of interbranch and interterritorial development, and major complex technological programs.

As it will no longer attempt to comprehensively allocate objectives, tasks, and actions, this central planning must strive to indirectly influence now autonomous plans and actions of subordinates to achieve those goals it still intends to realize. Perestroïka is trying to do this through a resuscitation of the profit motive, of monetary incentives for both individuals and organizations. This means that financial planning must become a central and essential part of the process. Money flows, prices, and credit can no longer be considered derivative of the physical plan, but rather must become the driving instrument for the attainment of the vision of the future outlined in the plan. Subordinates, in both their planning and implementation activity, must be financially induced to make proper decisions and constrained from undesired, counterproductive behaviors in terms of the ultimate central objectives. Hence planning is to concentrate significant effort toward
determining "scientifically based," uniformly applicable, stable financial rates and parameters, including credit charges, prices, taxes, allocating normatives, and financial penalties. The five—year plan is therefore to become primarily an instrument for investment allocation, the development of technology, and the regulation of the new Socialist market relations driving the process of implementation, and hence of the realization of the desired future.

This implies some change in the relative importance of the primary actors in the central planning process. The Ministry of Finance and GKNT are to gain significantly in importance and power, while the branch ministries would seem to be the prime losers. New superministries or Economic Complexes [Kompleksy] are to enter the picture, and GOSSNAB will find its role and functions significantly changed, though arguably no less important. Further, GOSPLAN should strengthen its position at the head of the planning process while losing some power vis—à—vis the operational units in the economy. GOSKOMTSEN also seems to be an organization whose power and influence is to be cut, despite the dramatic increase in the importance of prices for the functioning of the new economic mechanism. It is to lose the power to directly control most prices, and must settle for more indirect influence through setting rules and guidelines. Each of these, together with other organizations, still has an important role to play in the process of central planning, one that is emphasized in the major reform decrees, if rather slighted in the discussion of the reform. I will point to these roles in discussing the content and methodology of the central plans to be developed in the new economic conditions.

As indicated above, five—year plans are to replace one—year plans in having operational significance. Of these, the State Five—year Plan is naturally the most important, constraining and guiding those at lower levels of the hierarchy. The process of developing it is to run simultaneously with an updating and extension for five years of the 15—year Basic Guidelines and Conception; it remains forever the first, fully elaborated, third of a more aggregate and abstract rolling [sliding — skol'ziashchi] fifteen year plan.
That process of five-year planning is to begin early in the preceding five year period, as soon as performance results for the five-year plan preceding that are available.\(^5\) It is to conclude between a year and five months before the beginning of the planned five year period, giving subordinates sufficient time to make use of it developing their own five-year and current plans.

The Conception, which is to present a complete vision of the future consistent with the preferences of the political leadership, should be ready a full two years before the start of the relevant 15 year period. It is to be worked out by GOSPLAN under the close supervision of the top State and Party organs and in close cooperation with GKNT and the Academy of Sciences of the USSR. That vision and elaboration of Party and State preferences is to inform the more detailed 15-year Basic Guidelines which aim to outline how that vision is to be implemented.\(^5\) The Basic Guidelines are also to be largely the work of GOSPLAN, but \(\ldots\) in closer cooperation with GOSSNAB and the major economic Complexes. Their formation is to be an exercise in aggregate physical planning of more or less the traditional sort, but without the pretension of producing operationally implementable indices and directives for any subordinate organizations. It is to provide a check on the consistency of macroeconomic real variables both with the objectives outlined in the Conception and among themselves.\(^5\)

To this end aggregate material balances and investment allocations will be drawn up for the 15-year horizon, with a five year and ten year breakdown of the intermediate stages. The Basic Guidelines will also include an indication of desired rates of growth, proportions of final product, levels of efficiency, social development indices, and the structure of production and investment by economic complex. This long run plan is to be ready at least 18 months before the beginning if its 15-year period, again as a potentially valuable input into the more detailed planning of its first five years. Like the Conception, the Basic Guidelines are to be updated and extended, i.e. "rolled over," every five years, in order to take into account new information and changes in the economy that were
unanticipated five years earlier.

Developing the State Five—year Plan is again primarily the responsibility of GOSPLAN, though virtually every central organization has some role to play in the planning process. Though the details are far from clear, the process would seem to involve a significant amount of information gathering from below and bargaining over plan objectives, indices, and parameters. The main actors in this negotiation must include GOSPLAN, GOSSNAB, the Ministry of Finance, the economic complexes and branch ministries, and territorial economic and governmental organs. However, the nature of the negotiations and dialog must be quite different due to the differences in the objectives, scope, and objects of reformed central planning. All actors are to be discussing broader aggregates; issues of capacity, technology and investment, rather than input—output consistency, are to become the focus of the planning efforts of complexes, branch ministries, and territorial organs; and MinFin must defend a more sharply defined and restricted State budget. Thus financial and pricing questions must come to the forefront along with issues of capabilities and costs. This can be seen by looking at the intended content of the State Five—year Plan, at its output and component parts. 54

The process of planning is to produce three sets of indices and instruments as the primary content of the five—year plan. The first set implements the main objective of any type of planning — outlining the state of socio—economic development to be achieved and the primary tasks to be accomplished in order to achieve it. This is the set of control figures giving target levels for various categories of social (final) demand and target levels of performance efficiency. The former include value indices for branch production, levels of investment by branch, major structural developments, and capacity changes, indices for the introduction of new technologies, aggregate levels of turnover and trade, and finally social development, including infrastructure and aggregate consumption, targets. The latter include profit and income targets, foreign exchange earnings, labor productivity, capital and materials intensity of production, and the output to investment ratio. These targets
are broken down annually, indicating the progress to be achieved each year, as are the levels of achievement specified by the efficiency indices. They are all, however, merely non-mandatory guidelines to be used by subordinates in formulating their own five-year and current plans as discussed above. For that reason they are required to be completed a year in advance of the five year plan period.

The second set of instruments deals with that part of planned economic activity still subject to the command mechanism. It consists of state orders, and their supporting material balances, and allocation plans and decisions, including limits. The primary focus of these instruments is centralized state investment aimed at implementing major structural and technological development programs. State orders and limits further deal with the production and distribution of about 200 of the most important investment and intermediate ("structure forming") products, production relating to priority state and social tasks, the development of critical science and technology, defense and the "preservation of economic independence," and agricultural procurement. For example, in 1989 manufactured consumers' goods have been given a social priority and thus included in state orders, unless produced under the Ministry of Light Industry, despite a severe restriction of the nomenclature of items and value of output covered by state orders. Indeed, as a result of the growing consumers' markets crisis of 1989–1990, virtually all consumers' durables production is now under state orders through at least 1992.

Limits seem a substitute for the fondy of those key materials and resources still subject to central allocation, particularly when they are used in support of state orders. In addition, they are to be used for tighter control over state investment and in particular to limit the value of construction and subcontracting work that might be initiated by subordinates and thereby get out of control. Specifically limits are to be set on new construction, particularly important plan investment tasks, and on investment in interbranch production and technology development projects. These too must be taken into account by subordinate organizations in formulating their plans, and indeed must be
further specified, elaborated, and disaggregated by the Ministries before being passed on for mandatory inclusion in the plans of operational organizations and enterprises. This disaggregation and elaboration of state orders is to take place annually in accordance with the annual breakdown of the five-year plan, as corrected on the basis of information on performance during the preceding plan period/year. Thus state orders and limits are to be fully worked out no later that five months before the beginning of the relevant plan period.

The final set of instruments is arguably the most important and indeed seems to have received the most discussion in the literature. This is the set of economic normatives that are to guide subordinate decisions, provide incentives for pursuit of the social interest, for efficiency of operation, and for furthering the goals of the central authorities. They are to do so by providing a stable regulatory environment that financially rewards proper decisions and similarly punishes improper, inefficient decisions, in principle rendering profitability and income enhancement a reliable index of social desirability. They in effect place a value/price on all marginal tradeoffs that implementing decision makers might face, so that "value maximizing" behavior, based on "commodity—money" relations, will make the correct microeconomic tradeoffs even in the absence of any superior supervision. They lie at the heart of what is to make the "Socialist markets" of the new economic mechanism work in the interests of the political authorities and their central planners.

There are four general classes of economic normatives that are to perform this task. First there are normatives defining the relationship of the organization to the state and local budgets. These include taxes, in particular a fixed progressive income tax system, and various payments to the state for the use of capital, labor, and natural resources. Next, there is a broad range of normatives regulating financial flows and the distribution of income within a subordinate organization. These allocate net income among the wage and various incentive funds. Another group of normatives deal with penalties, compensation rates, and terms of credit. This group, and a group of normatives reflecting input—usage efficiency are still at a stage of formulation and discussion, though a number of Soviet
specialists believe that they will become a firm part of the new system. Finally, there is the largest and most important set of all the economic normatives, prices and tariffs. While only relatively few of these are to be set directly, as is now done for almost all prices, they are still to be subject to central manipulation and control through the use of price setting rules governing, for example, the negotiation of contract prices, and the central setting and control over the key, structurally defining prices in the economy. These are the most critical of all normatives for coordinating the decentralized plans and operational decisions of subordinate organizations on Socialist markets.

The new economic mechanism foresees a change in the methodology of price formation, tying it more closely to the structure of planning, and tying the resulting prices to the indicators of the respective five-year plan. In particular, the price indices of aggregate product groups must be "plan balanced," i.e. "input-output" consistent, with the structure of production of those product groups. Further, they are to move towards reflecting "minimal socially necessary (labor) expenditures," which a number of prominent Soviet economists have interpreted as meaning the marginal evaluations associated with the solution to the plan optimization problem. Hence GOSPLAN and the major Economic Complexes must work closely under the new system with GOSKOMTSEN, though the latter retains primary responsibility for establishing or overseeing the establishment of, and maintaining control over, all prices in the economy. Indeed the new laws demand the strengthening of 'price discipline' and of its effective control over price levels and changes.

However, meeting the criteria of increased plan-relatedness requires that the price system also become more flexible. To this end a three tier price system is to be established. The most important, structure forming products and resources, eg. fuels and energy and metals, are to have centrally fixed prices derived from the plan. These are to form the basis of the entire price system, an anchor against the drift of all cost (expenditure)-covering prices. The largest group of processed goods and services are to
carry what are called contractual prices [договорные цены]. These are mutually agreed upon between buyer and seller according to rules of pricing and evaluation set by GOSKOMTSEN. These prices relate to new, unique, and/or complex, highly processed, multi-component goods and services that require vast, locally conditioned, and rapidly changing information to properly evaluate. Hence they are to be left, subject to appropriate guidance, to those in a position to know best. Finally, there is to be a residual group of products and services over which there will be no price control, including much of the output of the non-socialized sector, production for internal use, and nonessential final consumer goods and services. This last category is intended to grow as market balance is achieved and scarcity eliminated.63

These, ultimately plan derivative, prices are to enhance the effectiveness of central planning by properly reflecting the relative values of all activities and products from the perspective of the central (political) authorities and their plan. If properly set they should integrate central preferences over final outcomes with the complex technological, social, and individual incentive constraints on their attainment. When the value of every economic activity is measured in such prices, and local operational agents have an incentive to actively pursue the maximization of that value, then the closest feasible alignment of central and local interests is attained. By manipulating such prices at the margin, fairly predictable responses of autonomous agents can be generated, allowing them to be "steered," in the pursuit of their own financial interest, toward more socially (centrally) desirable activity and output. This seems the vision, and indeed fervent hope, of the authors of economic Perestroika.

Other economic normatives give planners control over decentralized economic activity in a similar manner. In effect they alter the agent's share of the value created by various activities, altering profitabilities and hence the desirability of the pursuit of that activity. Thus agents again can be systematically influenced in their decisions to pursue planned objectives, and make the appropriate tradeoffs among them, by properly setting
marginal returns through economic normatives. This implies, of course, that plan objectives must become fairly general and be fixed over the course of the plan period, as a fairly small set of stable normatives cannot be manipulated to fine-tune detailed agent behavior. That, however, is fully consistent with the new approach to central planning, if quite contrary to the traditional approach.

This use of prices and other financial control levers means that financial and credit planning becomes critical to the effectiveness of central planning as a consistent guide to the use of such control. The financial plan, including credit balances is to become an integral part of the State Five-Year Plan, and its annual breakdown should include a specification of the State Budget in aggregated form and a summary of the financial flows of all subordinate and nonstate economic agents. Other balances to be included in this plan are: the "value balance" [stoimostnyi balans] of the plan; the summary financial balance; the balance of money incomes and expenditure of the population; summary foreign exchange balance. This is to be drawn up by GOSPLAN in close cooperation with the Ministry of Finance and GOSBANK. Indeed, the latter organization holds primary responsibility for some of the balances, though GOSPLAN must insure their consistency and incorporate them in the plan. In all, the financial five-year plan and its annual breakdown give a comprehensive picture of all intended financial flows in the system, indicating where profit is to be made and how it is to be used under various systems of normatives, and thereby providing a foundation for the proper determination of economic normatives. Financial plans and balances are to both reflect the consequences of prices and other economic normatives and provide a basis for rationally altering their levels.

The description and analysis of the new conception of central planning raises questions of methodology: Just how, by what methods, are these new types of plans to be determined? How is the information gathered in planning to be used to calculate the various objectives, targets, and instrument levels to be specified in the plan? Unfortunately, there is virtually no discussion of this question in the Soviet, or for that
matter Western, literature. There are at best allusions to the better use of standard methodological tools, an an apparent belief that the issue is absolutely straightforward — the only problem is to determine what to calculate; technical specialists will always find how! Such an attitude may, however, be a contributing factor to the failure of the traditional planning system, which posed an absolutely intractable problem. Thus it is worth looking to the methods of planning that have been mentioned, and speculating on just how they might be applied.

That classical methodology of detailed directive central planning, the Method of Materials Balances, seems to be prominent in the proposed methods for the future. However, its scope would seem to be severely restricted due to the limitation on the number of balances to be drawn up. Further, the highly aggregate nature of those balances, and the fact that consistency is sought over periods of five, ten, and fifteen years, imply that the inconsistencies of materials balances are both easier to avoid and more damaging to the purposes of the plan. The advantage of limiting aggregation error by working in branch—differentiated detail will also become irrelevant, further limiting the usefulness of this approach.

Hence, we should expect the practice of materials balancing to become more like the fully consistent application of input—output methodology. As in development planning practice, this can be helpful in clarifying aggregate requirements, revealing bottlenecks, and targeting investments. The results of serious input—output analysis should find reflection in both the control figures, and for critical, near homogeneous products, in state orders governing their production and in limits on their allocation. Finally, input—output analysis yields as a side product a "cost covering" price system for all the sectors or products so balanced for any, necessarily exogenous, factor cost and use structure. This could be a valuable input into the determination of those most important economic normatives, prices.

To use input—output or material balance methodologies one needs precise
information of available technologies and their intensities of use. Such information becomes particularly critical over longer periods such as envisioned under reformed planning, as past experience is no longer a reliable approximate guide. To deal with this, the discussion has turned to the application of statistical forecasting models and the further development of the "expert system" as a forecasting tool. Such methods might be useful not only for technology and input coefficient change, but also for predicting aggregate demand, cash flows, and costs that must lie behind the determination of control figures and many economic normatives. They can be further supplemented and enhanced by the use of a relatively new area in Soviet mathematical economics: interactive simulation modeling. This involves creating extensive man—machine systems that automatically solve complex, but routine, optimization and equilibration problems while allowing all economically (or politically) sensitive decisions to be made by an operator. While each such system can address only a very small part of the planning problem, they do allow playing out a number of scenarios to investigate both the consistency and the consequences of forecasts. This appears a particularly promising heuristic tool for "testing" economic normatives before they are, in principle, immutably set for a five year period.

A final tool that seems to have much support and some promise of aiding medium to long term planning is that of dynamic input—output analysis. This extends the static model by considering capacity, i.e. capital stock, constraints and the input requirements needed to maintain and expand them. As an explicit optimizing model it provides endogenous shadow price valuations of all constraining capacities, in addition to a set of consistent full cost prices derived from these and exogenously given factor usage and other factor prices. It also helps clarify the impact of alternative final demand structures and identify dynamic bottlenecks and investment needs. Thus the consistent use of dynamic input—output could provide a "scientific basis" (as Soviets are wont to say), albeit at a high level of aggregation, for control figures, state orders and limits, and some economic normatives. That basis, however, will still be conditional on numerous assumptions that
must be made on other grounds, such as those on technology and the structure and
dynamics of the use of final economic product.

Perhaps the greatest shortcoming of each of these, and indeed all other proposed
methods, is that none adequately comes to grips with what is perhaps the most important
problem for making a decentralized, yet centrally directed, system work: the problem of
information and incentives. In its simplest form in the intended system, it is phrased as the
oft referred to problem of the "organic interconnection of prices and the plan." This
presumes that agents, whose activity is subject to plan influence, systematically pursue the
enhancement of economic value (wealth), can be financially motivated to do so, and are able to largely base their decisions on the information provided by price signals. Thus it
presumes a well functioning system of markets largely populated by profit/wealth
maximizers. A key aspect of the problem of planning for the intended system must address
the issue of how to induce such behavior, before turning to the question of how to
determine prices consistent with, and supportive of, the plan.

Assuming such behavior, it should be explicitly incorporated in planning models and
methodologies in a way that none of the above, with the possible exception of simulation
modeling, does. It would seem to require the calculation of control figures, state orders and
limits, and economic normatives in a model with self-interested optimizing agents, with
mechanisms for equilibrating the consequences of their decisions, as well as with some form
of explicit central optimization over social preferences driving the choice of these objects.
Indeed, it cannot just work with final outcomes, but must take explicitly into account the
impact and quality of functioning of the all important implementation mechanisms.

Yet this is only part of the information and incentive problem facing central
planning in the economic environment sought by Perestroika. A more difficult aspect is
posed by the need to elicit both information and cooperation from subordinates in the
formulation and implementation of the plan. Effective central planning in such an
environment requires that subordinates accurately report required information both during
the planning process and in their annual plans and plan fulfillment reports. This includes much information regarding the state of their operations, their research and development activity, investment activities, efficiency characteristics, and operating capacities and capabilities that is not readily, if at all, verifiable. This is the lion's share of the information on which central plans, with their detailed control figures, economic normatives, state orders, and allocation and investment limits must be, and indeed are, built.

Once a central plan is compiled, the need for subordinate cooperation only grows. Whatever the quality or consistency of the final plan, it cannot have a positive effect on the nature or efficiency of outcomes if autonomous economic subordinates do not implement it as planned. Decentralization puts any plan at the mercy of local information and local incentives. For subordinates should now make every effort to comply with the plan, to fulfill even non–mandatory guidelines and targets and to accurately report performance. The Soviet plan is still clearly meant to actively guide social and economic development, to point out the best way to the future. That, indeed, seems what is meant by the incessant calls for increasing the impact and effectiveness of central planning. The plan must therefore provide positive incentives, make it in each agents interest, to implement the measures indicated as socially desirable in that plan and to keep the center truthfully informed as to the progress in their implementation. These incentives are now particularly important in that the detailed activity of agents is no longer to be subject to close planning control and supervision, but is left to the discretion of the agent. Thus effective central planning requires that subordinates be motivated to provide appropriate and accurate information for the purposes of drawing up a central plan and, once presented with the plan, to correctly and fully implement all aspects relevant to their capabilities and behavior, and finally to truthfully report on these activities.

A difficulty arises here because local interests and objectives are not inherently identical to those of the central planners. Thus wherever local and central interests
diverge, positive incentives must be provided to induce the proper choice being made, even though that choice and most of its consequences can not be observed or monitored by the central planners. Otherwise local agents will only take advantage of the situation in their own interests, choose self-serving actions, and distort information and mislead the center when it appears that the local behavior is not socially desirable. Thus the self interest and preferences of subordinates need to be taken into account in formulating the plan, thereby modifying it so that appropriate incentives are provided both for the revelation of information on which the plan is based and for the correct implementation of the plan's objectives. This poses two critical, interacting incentive problems:  

(i) An agent with unverifiable, private information, not available to others, cannot be compelled to reveal that information honestly without the correct incentives [Adverse Selection Problem];  

(ii) An agent controlling some private decision variable that others can't control or monitor, cannot be expected to choose any particular decision or action unless he is given the proper incentive to do so [Moral Hazard Problem].

The resolution of these classical incentive compatibility problems requires correctly posing and solving an optimization problem of extraordinary complexity. It further requires tremendous concessions by the central authorities with respect to the kinds of requirements that can be placed on agents and the directions in which agents' behavior can be successfully steered. For the central authorities must repeatedly compromise with the objectives of local operational organizations in order to provide them with the proper incentives to accurately report local, private information so necessary to any planning and then actually to implement the measures needed to achieve planned central objectives. These are the primary implications of a formal analysis of centralized planning for decentralized implementation in Ericson (1989).

Thus the problem of central planning in a decentralized implementation environment, though structurally simpler, is indeed more complex than the hereto poorly managed tasks of traditional Soviet central planning. Attempting to plan the outcomes of
the autonomous interaction of millions of agents creates an extremely tricky situation, one fraught with dangers and surprises for all involved. For the full consequences of any instruction, constraint, incentive, or action can never be known in advance. One can at best hope for an understanding of, and influence over, broad general consequences and directions of change. Even with well functioning markets it is impossible to predict with any confidence the consequences of even limited and minor changes in economic instruments, never mind control. Indeed, there is no well developed theoretical model that resolves, even in simple cases, the problem of decentralized coordination of autonomous agents in accordance with a central plan. The only existing theoretical results are largely negative, showing that the problem posed is indeed more complex than that of command central planning and further, if not solved precisely properly, is apt to result in worse economic outcomes than the inefficient traditional system. Hence the growing economic crisis of early 1990 might be explained, at least in part, by the inherent difficulties and contradictions in the new conception of economic planning that lies behind, and indeed drives, Gorbachev's economic Perestroika.

THE POSSIBILITY AND PROSPECT FOR SOVIET CENTRAL PLANNING.

The Soviet leadership has recently launched a major attempt to redefine the concept of central planning that the Soviet Union had pioneered, to replace an understanding that had dominated for over sixty years. The effort revolves around altering the scope and content of central plans, rather than the methods of their determination or their ultimate objectives. By focusing planning efforts, reformers hope to improve the performance of the economy, as well as increase the effectiveness of political control over it. Yet they have provided us with no more than hope and assertions that that is possible. There has been no serious Soviet analysis of how central planning could become more effective, of why the proposed changes should yield improved efficiency and performance.

The vision is one of broad strategic planning with decentralized, largely voluntary,
implementation by autonomous, self—motivating subordinates. These subordinates are to
determine virtually all of their own operational activities and interactions, motivated by
the pursuit of some form of net earnings in an economic environment largely formed by the
decisions of central planners. The hope is that by centrally determining, by directly
planning, major structural decisions and "structure forming" activities and materials, and
by setting valuations and procedures for valuation that are closely related to
non—mandatory guidelines for activity and performance, the interest of operational
subordinates in maximizing net earnings can be made coincident with the center's interest
in following those guidelines, in the attainment of planned objectives.74 Further, the
freedom of subordinates to choose how to operate, to choose partners and make tradeoffs,
and their responsibility for their own bottom line, should induce them to operate efficiently
and seek profitable innovations in terms of the valuations, especially prices, that they face.
Thus at the center of this vision is a set of centrally planned and regulated "socialist
markets" intermediating the interaction of economic agents and fine tuning prices within
centrally planned constraints.

Decentralization in this vision is, however, to be strictly limited to implementation;
major outcomes and ultimate objectives are still to be centrally planned. Among other
things, control is to be maintained over the relative proportions of consumption and
investment, the structure of capital and productive capacities, patterns of aggregate
consumption and income distribution, the structure and rates of growth of macroeconomic
variables, and the level and types of technology developed and used.75 There is still a clear
desire that central planning have a real impact, that outcomes other than those that would
be automatically generated by the decentralized interaction of agents on markets be
achieved. Yet they still hope to get the efficiency of the constant experimentation,
searching for opportunity and potential innovation, arbitraging of margins, and finding and
consummating of mutually beneficial deals that is inherent to a real market process. The
vision is one of imposing central preferences indirectly, without sacrificing efficiency and
innovativeness, without generating the waste and misdirected effort that is naturally associated with implementation by subordinates not fully responsible for the outcomes of their actions.\textsuperscript{76}

This is an attractive vision, though one that still remains to be developed in any systematic detail. However, there is some reason to believe that in cannot be realized in practice. The type and scope of control that is still desired over the structure and outcomes of economic activity may not be consistent with the proper functioning of a decentralized, market based implementation mechanism.\textsuperscript{77} Indeed, decentralized mechanisms, in particular well functioning markets, yield largely unexpected, often unpredictable, results. Those results arise from the complex interaction of the disparate interests and objectives, and changing perceptions and constraints, of all of the agents involved. Attempts to indirectly control the outcomes of such mechanisms inevitably involve the use of aggregate, blunt (with respect to the detail of operational activity) instruments which have an impact far beyond that intended. Such instruments generated a self-interested response on the part of each agent, with complex echo effects through their interactions, creating a broad array of unexpected consequences. These consequences naturally tend toward maintaining the equilibrium prior to intervention, or achieving compensation for the agents subject to that intervention, and hence can be expected to be broadly distasteful to the central planners who stimulated them. Equilibrating mechanisms, by their very nature, generate forces opposite to those impinging on them.

Thus there is a continual tension between plans attempting to channel decentralized agent behavior and the outcomes of decentralized agent interaction. This creates a continuing temptation for central planners to intervene, forcing outcomes and under cutting the autonomy of agents. Such action by the center naturally destroys the ability of agents to carry out economic experiments, search for opportunities, and make the tradeoffs required for efficiency. Hence the effective planning of efficient decentralized implementation must strike a fine balance between what the center desires and what it
must allow.

That precise balance, of course, must depend on the nature of central objectives. The instruments chosen to influence implementation behavior must be able to render those central objectives locally optimal in the sense that each of the partial measures that needs to be taken towards their implementation should be desirable in the eyes of the agent that needs to take it, and there should be no counterproductive actions that seem more desirable to any local agent. Further, these incentives need to be formulated in such a way that they do not foreclose the search for improvements, for socially desirable opportunities for production and exchange, that they preserve the incentives for innovativeness and efficiency. They need to take proper account of agent preferences and information, of the changing real, interactive situation faced by each of the agents. Thus the key seems truly to lie in the problem information and incentives discussed above.

The issue of microeconomic efficiency, of assuring appropriate agent attentiveness to the (opportunity) costs of implementation details, to changes in opportunities and evaluations is hard to imagine resolving without the introduction of real, well functioning markets. Indeed, much of the Soviet economic discussion recognizes this. Yet Soviet central planners seem afraid of such markets, and not without reason: markets are inherently unruly beasts, the epitome of uncontrollable decentralization. Central planners still have a strong preference for control, at least over final results, and a fear of unplanned, and therefore disruptive, spontaneity. Thus all action, any display of initiative and any resulting profit must be clearly related to what they perceive as the social interest. Arbitrage, speculation and the resulting windfalls that are so necessary to the proper functioning of markets are illegitimate and, indeed, still illegal. The objective of planning reform thus seems to be the creation of "tame markets," i.e. plannable fora for the implementation of only interactions desired by the central authorities. These are merely pseudo-markets which do not really create the conditions necessary for economic efficiency.

Yet even with real functioning markets the question remains: to what extent are
efficient outcomes plannable? Indeed there remains an open question as to the extent that government policies of any type can be effectively implemented. Though central policies clearly have a major impact on how the economy functions, on agent behavior, there is a natural tendency of the response of autonomous agents to counteract the thrust of those policies. Agents naturally adjust their behavior to maintain their own goals, to protect themselves to the extent possible, anticipating the consequences of government plans and policies. Thus while such policies do have an impact, it is often far from that intended, and frequently contrary to it.\textsuperscript{70}

However, there is no good theory or serious empirical study, of which I am aware, of how much control a central government can maintain in the face of real markets supporting efficient microeconomic activity. There is just massive anecdotal evidence with respect to planning in market economies, in particular Britain, France, Sweden, and Japan, that does not provide real support for the proposition that central planning can have a positive impact.\textsuperscript{80} Efficiency requires decentralization and agent flexibility, while planning presumes to coordinate and restrict choices — an apparent contradiction that requires resolution in theory as well as practice for Soviet central planners to make their intended system work.

These considerations naturally raise a question of just where central planning might prove advantageous. What is the positive role that central planning might play? The answer to such questions indicates what kind of central, planners’ preferences might be imposed without disrupting the efficiency of decentralized interaction. Indeed, I would argue that only a much less ambitious vision of central planning, and one that is willing to pursue the kinds of objectives that markets do well, is apt to be both effective and not systematically wasteful of social resources.

A first and obviously useful role for central planning is in the exploration and clarification of central/social preferences. To go any further, planners need to have a clear explicit idea of just what is desired, to what extent is it desirable, and what are the
tradeoffs that they are willing to make. This is virtually impossible to do in the abstract, so there is a natural information gathering, prediction, and scenario building set of tasks that could be usefully performed by central planners. This provides a basis for understanding what might be done, for exploring alternatives for the future, and formulating and ordering social demands. In particular it provides a basis for rational multi-year government budgeting and the formulation of priorities for the "plan" period.

In pursuing priorities, rather than fighting market outcomes, central planning should concentrate on fostering an environment supportive of market activity, granting specific favors in those areas that the central planners want to see develop most rapidly. This involves planning the access to a generalized, liquid command over resources, i.e. money and credit, in priority sectors, without specifying when, how, or by whom it is to be used. That will allow those with the best opportunities or ideas with respect to that area to develop them, to experiment and innovate in ways that central planners could never conceive of ex-ante. The favorable terms at which such funds are provided, of course, must be closely related to market determined opportunity costs, even if somewhat different due to some special information or preference of the central authorities.

Similarly, areas of activity which society, or just planners, find undesirable can be discouraged by raising the cost of funds and credit to those who pursue them, by altering the market constraints that those areas face. Direct prohibitions or restrictions, or attempts to directly regulate again prevent agents from adjusting in a nonwasteful manner and frequently provoke directly dysfunctional responses. Thus effective central planning of decentralized market interaction must take advantage of the self-interested behavior of economic agents, inducing them to alter their activities in response to changes in the costs and constraints that they face.

Of course, to avoid arbitrarily distorting individual incentives, the central instruments influencing those costs and constraints must be differentiated only by the economic activity, and be uniform with respect to all agents that are, or might potentially
be, involved in it. Uniform taxes, subsidies, and terms of credit, fixed for a sufficiently long plan period for economic agents to understand and adjust to them, can have a real impact in channeling the self-interested behavior of those agents toward broad, general plan goals. Individualized, or even narrowly targeted instruments, invite the distortion of information and gaming behavior on the part of subordinates, vitiating both the effectiveness and the efficiency of planning.

Such market oriented central planning naturally encompasses the use of taxation and pricing instruments for dealing with clear cut externalities, the practice of rational, comprehensive and consistent budgeting of state expenditures for final social demand, and the subsidization of clear public goods, including education, science, and the development of new technologies. Further, the provision of goods and services that might otherwise be under—provided in the eyes of the center can be stimulated through budgeted demand, as can major development projects including social infrastructure. However, planned objectives must be evaluated at market opportunity costs and implemented through markets for waste of resources to be minimized; imposition destroys incentives both for the proper provision and use of information and for attention to costs and care in implementation.

Clearly, if something is sufficiently important to the central planners so that cost is no object, then it can be effectively imposed. But that requires extraordinary attention and effort. If effectiveness is not to be lost, the number of such priority projects must remain strictly limited. Less important social/planners preferences can be pursued, but planners must recognize that they differ from the preferences of the agents who must actually implement them. Hence they should be pursued indirectly, inducing the willing cooperation of those agents by providing incentives in terms of what they desire. That places constraints, perhaps quite severe, on what central planners can hope to achieve if they are to avoid introducing new inefficiencies and new dysfunctional behaviors, with attendant unpleasant consequences.
Thus central planning can be effective without disrupting efficiency only if practiced in sufficient moderation. As its scope and detail expands, the informational requirements for its effectiveness expand even more rapidly, allowing incentive compatibility problems to arise as well as rendering plans less complete and consistent. This naturally leads to a loss of effectiveness in achieving planned goals, as well as a loss of efficiency due to incentive distortions, the stifling of initiative, the foreclosing of opportunities that agents might have pursued, the restricting of agents' ability to respond to problems, and the lifting of ultimate responsibility from implementers who must now follow orders. Overly ambitious, immoderate planning generates growing inefficiency and subsequently increasing calls for specific measures, more planning and intervention, in order to deal with obvious problems. If those calls are heeded, a spiral ultimately leading to the traditional system and its inherent stagnation and decay is set in motion.

The requisite moderation in planning must be with respect to both objectives and instruments. The preferences and objectives of individual economic agents should be respected in planning, and central preferences correspondingly modified, for those agents to cooperate in efficient implementation of the few central priorities that can be effectively pursued. Further, instruments must not discriminate among agents, but only among the activities and final results in which the planners have sufficient interest, if dysfunctional manipulation and gaming by agents is to be avoided. Unfortunately, Soviet central planning is still far from recognizing this. The reform documents, and even the Abalkin (1989) radicalization, indicate that Soviet planners are still trying to carry out an impossible task, to control too much, too directly. Although it is recognized that implementation must be to some extent decentralized, that extent, and how to achieve it, is not yet understood, nor has it even begun to be seriously investigated in the Soviet Union.

There is a further need to recognize that the same is true with respect to planned objectives. Their determination must be left to a considerable extent in the hands of the
agents who significantly affect their attainment. This does not mean the "democratization" of political control of objectives; that is a recipe for chaos and irrationality of choice. Rather it means admitting a large degree of "consumers' sovereignty" and producers' freedom of choice of activity and product. Soviet central planning needs to recognize that proper incentives for efficiency and innovation in meeting true social demands require many unanticipated, and often socially undesirable, consequences with respect to both the activities pursued and their welfare impacts, especially in wealth and income distributions. Thus central planning which is to be more than just a systematic sharing of information, which is to have a real impact on behavior and outcomes, must tread a fine line between planners' objectives and the interests and objectives of agents. To be effective it must remain incentive compatible, and to preserve efficiency it must respect agent initiative and the pursuit of private goals.

The implications of this analysis for political control of the economy are perhaps discouraging. To be truly effective, to achieve its goals, such control must have modest aspirations. Crudely put, if planners want to do what markets do well, want to implement some modest modification of consumers' and wealth sovereignty, then central planning can be quite effective. For markets can be modestly manipulated by affecting both the distribution of economic power/wealth and some finite set of marginal evaluations, assuming that the government is willing to absorb any imbalances thereby created. If the political goal is innovation, efficiency, and flexibility, then minimum regulation coupled with the general support for private initiative and experimentation can be planned, with special incentives targeted to priority directions. Further, if centrally unknown yet desirable opportunities are not to be foreclosed, maximum latitude should be left to those taking advantage of that support to determine the end toward which it is to be used.

However, if the political authorities want more, if they presume to lead, to direct society toward a better future, whether society wants it or not, then decentralizing must inevitably sacrifice effectiveness. Attempts to impose priorities become blunt instruments
with wide-ranging, unexpected and usually unpleasant consequences, as agents move to protect their own interests and position, counteracting those instruments. To the extent that agents have the power to do so, that they are autonomous, central planning loses its effectiveness. Further, efficiency of operation is lost as agents respond to plan signals rather than proper economic evaluations and opportunity costs.

For achieving major, observable, physical outcomes, for maintaining the appearance of near total political control, nothing dominates the traditional Stalinist system. Stalinist central planning was effective, if decreasingly so as the economy developed and became more complex. However, it became clearly insufficiently effective, as well as hopelessly inefficient, as the priorities, the objectives of the political leadership changed.

The Soviet leadership now desires more modern, more qualitative results, such as innovativeness and rapid technological progress, maintenance of a high standard of consumer welfare and quality of life, and efficiency in resource use and production. All of these must, in large part, be based on the information and defined by the interests of individuals and subordinate agents in the economic system. To achieve such qualitative results decentralization of both objectives and actions is necessary; those whose real activity generates outcomes must be allowed to chose those outcomes, at least to a great extent. Hence, political control, to be effective, must restrict its Faustian impulses and moderate its ambitions. The payoff will be in a sense of guiding developments, and in the efficiency and innovativeness of the economy that is so lightly guided. The presently intended system of central planning and implementation, however, cannot have so favorable an impact. Unless significantly modified it can only lead to a deterioration of both the effectiveness of planning and the efficiency of planned outcomes. Thus the situation is unstable, and we should expect further significant changes in the intended system of central planning.
NOTES.

1The Law on the State Enterprise (Association) was approved at the June (1987) Plenum of the Central Committee of the Communist Party of the USSR, and passed into law by the Supreme Soviet on 1 July 1987. See *Ekonomicheskaia gazeta*, #28, July 1987.

2This is clear from Gorbachev (1987), and was highlighted in both Gorbachev's and Ryzhkov's speeches to the June (1987) Plenum. *Ekonomicheskaia gazeta*, #27, July 1987. Also see Gorbachev's speech before the 19th Party Conference, 28 June 1988, in *Ekonomicheskaia gazeta*, #27, July 1988.

3This was asserted in his speech before the first session of his new Presidential Council on 12 March 1990. See *Izvestiia*, 13 March 1990.

4This is clear even in the 1990 discussions in *Voprosy ekonomiki* and *Planovoe khoziastvo*. See, for example, Shilina (1990) and Emel'ianov (1990) in the former, and Bezrukov (1990) and Bachurin (1990) in the latter.


7The Basic provisions for the Radical Reconstruction of the Economy also came out of the June (1987) Plenum as a framework document, explaining the logic of the new economic system being proposed and the place of the Law on the State Enterprise in that system. It, too, was published in *Ekonomicheskaia gazeta*, #28, July 1987. Complaints of lack of real change were common at the 19th Party Conference, and regularly appear in the Soviet economic press. For example, see D. Valavoi in *Pravda*, 6 November, 1988, The Znamia symposium around an article of Seliunin (1988), and L. Abalkin's speech to the 19th Party Conference, 29 June 1988, partially published in *Pravda* the next day. This continuing sad state of affairs and the now growing alarm about the economic situation are clearly captured in the economic review articles of E. Gaidar (1989, 1990) in the theoretical Party journal *Kommunist*, and the farewell article of V. Seliunin in the last issue, before its demise, of *Stroitel'naia gazeta*, 31 December 1989.

8This was particularly the case with state orders in 1988, which grew to cover some 80% – 90% of output, and economic normatives which were adjusted to yield precisely the previously planned financial flows. See, eg. D. Valovoi in *Pravda*, 13 September and 6 November 1988, Seliunin (1988), and Roundtable (1988a). As a result of a direct central policy decision, the share of state orders in output fell in 1989, although not as much as intended, with seriously disruptive consequences as enterprises turned to more lucrative contracts ignoring necessary output that had been previously commanded. In response, by late 1989 the scope of state orders was again dramatically expanded as part of the new emergency "market stabilization" program. See Gaidar (1990), Abalkin (1989), and Ryzhkov (1989).

9Again the complaints are ubiquitous, from Gorbachev at the 19th Party Conference to the latest issue of any economic newspaper, eg. *Stroitel'naia gazeta*, "The Economic Questionaire of SG," #1, 14, 21, January 1989. The refrain has continued into 1990, most particularly in the discussions of the new Congress of Peoples Deputies and Supreme Soviet.

10See the discussion in Abalkin (1989), Kagalovsky (1990), and Gaidar (1990).
This is the so called "Abalkanization" of the reform; see Rumer (1990). In early 1990 there was some discussion of impending, more radical "marketizing" reforms, supposedly being developed by Gorbachev's new economic guru, Nikolai Ya. Petrakov, aimed at a "full-blooded market economy," as Gorbachev put it in addressing the Presidential Council in March. See the Petrakov interviews in The Times of London, 21 March 1990, and in Le Monde, 24 March 1990. Indications are, however, that it is still intended to be Socialist, regulated, and subject to central control ("financial centralism").

The lists are from Gorbachev's and Ryzhkov's speeches respectively. See note 2 above.

There is a clear tension between these concepts in recent theoretical articles, e.g. Shilina (1990). Central planning, however, still remains the dominant and controlling concept.

See any standard Soviet text on planning, e.g. Chistiakov and Morozov (1971), or Filippov (1984).

The classic statement is in Grossman (1963), who also provides the first clear theoretical formulation and analysis of the "command" implementation mechanism.

Again see the speeches referred to in note 2. The same belief is conveyed by the preambles to the Basic Provisions (1987), the Law on the State Enterprise and the 17 July reform decrees in Documents (1988). The recent book by N. Shmelev and V. Popov (1989) elaborates the indictment in exquisite detail.

See Masse (1965) or, for a fuller discussion, Meade (1970).

This is an essential aspect of the logic of the Soviet system. See Nove (1985), Chapters 2 and 3, and the strong argument to that effect by F. Kushnirsky (1982).

Kornai (1983) makes this point in emphasizing the continuing softness of budget constraints and the individualization of financial controls for each firm.

This was formally recognized in Article 6 of the 1977 Soviet Constitution, guaranteeing the "leading role of the Party" in all aspects of life. In February 1990 this article was abandoned by the Party, yet its institutionalized structure, in primary Party organizations and the Nomenklatura, remains in place in the economy, if somewhat weakened by processes of democratization.

An elegant, early discussion is in Grossman (1962). For more complete, yet still brief, summaries see Bornstein (1985) and Chapter 3 in Hewett (1988).

This is a description of the traditional Soviet system prior to the political changes of 1989 and 1990. There is now an extremely powerful Presidency at the apex of the governmental structure, created 12 March 1990, and a new democratic super legislature, the Congress of Peoples Deputies elected in March 1989, from which members of the active legislature, the Supreme Soviet, are selected. The Council of Ministers is now subordinate and responsible to these legislative bodies.

This point is emphasized by emigrés who have worked in the Soviet planning apparatus. See, for example, Kushnirsky (1982), pp. 54–7, 78–83.

See Berliner (1976), Chapter 3, and Ericson (1979), Chapter 1.

Hewett (1988), p. 120.


Garvy (1977) provides a detailed discussion of money, banking, and finance in the USSR.
Different Soviet sources give different numbers, all of this order of magnitude. For a nice brief discussion of the problem it poses, see Petrakov and L'vov (1988).

There is a well developed theoretical literature on planning procedures that resolve the coordination and information transfer problems in the absence of computational constraints, and that characterize fully optimal solutions to the planning problem. See Cave and Hare (1981) for an easy, if slightly out of date, survey. These "solutions," however, require far more detailed information than could ever be communicated in real time and far greater computational capability than conceivably feasible. Thus a correct solution is in practice unattainable, and various second best approaches must be sought.

It is the use of this control over information in plan bargaining, and use of the "power of reasonable interpretation" of necessarily incomplete plans, instructions, and commands, that has led some authors to conclude, incorrectly in my view, that GOSPLAN is hostage to ministerial and departmental interests.

This is something of a theme of Kushnirsky (1982), is implied in Chapter 4 of Hewett (1988), and is fully consistent with the logic of the system.

The best brief discussion is in Hare (1983).

Kushnirsky (1982) gives a nice discussion of both procedures. Birman (1978) is a basic reference on the latter.

This is now a common part of the indictment of the traditional system in the Soviet literature. See the references in note 16.

For a particularly trenchant criticism of the consequences of detailed central planning in the Soviet literature see N. Shmelev and V. Popov (1989). Published in both the Soviet Union and the United States, it summarizes and extends his arguments that had already been published in a series of articles in the Soviet Union.


The following discussion draws heavily of the Basic Provisions (1987) [see note 7 above] and the July 17 Decrees published in Documents (1988), as well as the speeches [note 2]. It was also influenced by Aganbegian (1988), Kazekevich (1987), Shchipantsev (1989), and Bezrukov (1990). The same ideas were also developed, with only slight extension, in the Abalkin (1989) proposal.

An early exposition of this philosophy of planning was V. Nemchinov (1987), which first appeared in Kommunist, #5, 1964. There is an amazing coincidence between this article and the main provisions of economic restructuring. See Bezrukov (1990) for a recent explication of this philosophy.

Analysis of the new economic mechanism is beyond the scope of this essay, so I will discuss it only when it impinges directly of issues of planning. Most recent reform activity (to April 1990) has dealt with the development of the legal foundations of this mechanism and of the appropriate political environment for its functioning, including the new Law on Land and Law on Property and the development of political decentralization and democratization.
The idea of a 15-year Perspective Plan was developed in the early 1970's to correct the perceived drift in five-year planning. One was developed for 1975–90 but proved to be totally unrealistic. Though work on a successor was begun before Brezhnev's death, central interest faded and GOSPLAN apparently lacked the time and resources to push it through. Thus it was an approach that proved infeasible in the past, and hence never bore fruit. See Kushnirsky (1982), pp. 99–100, 121–2.

See the Law on the State Enterprise, Section III.10, and the Decree on Planning, Sections 6 and 7, in Documents (1988).

Limits [limity] are sometimes referred to as 'ceilings' although they sometimes are minimal amounts that must be exceeded. Thus I use the more literal translation.

This discussion is a summary of a large Soviet literature on the intended plan instruments. At least one article can be found in any issue of Ekonomicheskiaia gazeta, now renamed Ekonomika i zhizn. A particularly clear presentation is in Kazakevich (1987), which was presented at the AEA meetings in Chicago, 29 December 1987. Also see Shchipantsev (1989) and Bezrukov (1990).

This discussion of timing is drawn from the Planning Decree in Documents (1988).

Contract performance is particularly important for wages and the size of investment and incentive funds. It is also the prime criterion by which management performance is judged. See the collection of documents Full Economic Accountability (1988).

This is particularly emphasised in Decrees #819 and #821, in Documents (1988), on the financial mechanism and the roles of banking and credit under perestroika. It is also the key to understanding Gorbachev's "financial centralism" in his 1990 drive for radicalization of the stumbling reform.

This process of drawing up the 13-th Five-year plan, the first under the new economic conditions, as well as that of the Conception for 2005AD and the Basic Guidelines for the next 15 years, are running well behind schedule. In part this is due to startup problems and to the fact that the new economic mechanisms will not be fully operational by 1991, when they were to take effect. The Abalkin–Ryzhkov stabilization program has further set this timetable back as 1990–1992 are to be dominated by stabilization policies, with reform only really beginning to be brought on line in 1993–1995. See Ryzhkov's speech in Izvestiia, 14 December 1989.

The role of Party organs is no longer so clear since Article 6 of the Soviet Constitution was altered in spring 1990; there now may be multiple competing political parties vying for control of the planning process.

Again the discussion is culled from numerous passing references and articles on other subjects in the Soviet press, as well as the official documents. I have seen no serious attempt to explain the logic, structure, functioning, and methodology of central planning in the reformed Soviet economy, though superficial discussion is to be found everywhere. Typical of the latter is Aganbegian (1988), Shchipantsev (1989), and Bezrukov (1990).

This too is based on the existing normative documents and some periodical literature discussion, as no five-year plan has yet been drawn up under the new conditions.

Most of this list and the quote are from the initial statement in the Basic Provisions (1987).
This is from the published summary of the 1989 plan, which has incorporated a number of the characteristics of the intended planning system during this transition period. The new mechanisms will only become fully operative during the 13th Five-year Plan, by which point this priority may have changed. See the report on the plan of Masliukov (1988). Also see "Vremennoe polozhenie o ... goszakazakh 1989—90," Ekonomicheskai gazeta, #31, 1988.

See Ryzhkov's speech on 13 December 1989 in Izvestiia the next day.

Under the second model of khozraschet (economic accounting) the wage fund is a pure residual and thus subject to normative determination. The first model is, however, predominant, and is likely to remain so for some time. Now a third model, granting true financial autonomy, built around rental of the production operation (arenda), has entered the discussion. These issues are again discussed in virtually every issue of Ekonomicheskai gazeta (now Ekonomika i zhizn').

In particular, see D.M. Kazakevich (1987), pp. 28-47.

See the Basic Provisions (1987), Section II, the enterprise law article 17, and the pricing decree (#820) in Documents (1988).

That is, \( p = v \cdot (I-A)^{-1} \), must hold for the planned technological input-output coefficients in the matrix \( A \), and for the planned "value added" in each sector \( j \), \( v_j \).

For economists at CEMI such a N. Petrakov, the problem of planning is formally a large scale mathematical programming problem. Any solution to such a problem automatically generates a complete set of "shadow prices" for the constraints of the problem, and hence "plan balance prices" for all products. See N. Petrakov (1987).

How balance is to be achieved and scarcity eliminated without such flexible prices is left a mystery. Indeed, 1989-1990 saw the reverse trend of increasing control over non-state (especially, cooperative) prices to counteract growing imbalances and scarcities, particularly on consumers' markets.

This is emphasised in Decrees #819 and #821 in Documents (1988).

On the use of the traditional method, see Levine (1965) and Kushnirsky (1982). The Method of Material Balances was also the first and primary methodology referred to by Abel Aganbegian when the question arose at a Harriman Institute dinner on 13 February 1989.

For a discussion of the relationship between input-output analysis and material balance methods, see Hare (1983). On the use and potential for input output methodology, see Montias (1959, 1962). On uses in development planning see Blitzer, Clark, and Taylor (1975).

This is based on discussions during repeated trips to the Soviet Union since 1982 with economists at CEMI and the Institute for Social—Economic Problems of the Academy of Sciences, and at the Leningrad Economic—Engineering Institute.

See Blitzer, Clarke, and Taylor (1975), Chapter 3.


Indeed, if they were, much of the perceived need for central planning would disappear, along with the State, as some earlier Soviet marxist thought seemed to believe.

For a general theoretical analysis of these problems see Myerson (1983).

A now classic example is the impact of the tax law changes initiated in the United States in 1982. Virtually anything conceivable was predicted by someone, and most were (are)
surprised by even the general macroeconomic consequences. The degree of change attempted in the Soviet Union is many orders of magnitude greater.


74 This is clearly, and most concisely, stated in Nemchinov (1987).

75 These objectives, and their mandatory nature, are stressed throughout the July 17 Decrees on radical restructuring (Documents, 1988), as well as in the speeches of the Soviet leadership.

76 The fundamental irresponsibility of subordinates with respect to final results of their actions is quite rightly stressed by Kushnirsky (1982) as a primary source of the malfunctioning of current Soviet plans.

77 By proper, or "well," functioning I mean one that systematically tends to balance supplies and demands by allowing flexible alteration of activities and interactions in response to new information of any agent and the arbitrage of differences in evaluations.


79 This is the thrust of the rational expectations critique, and a result of much current macroeconomic research on market economies. See, for example, Lucas and Sargeant (1983).

80 Of course, one cannot make a strong case against central planning on the basis of this evidence either. See, for example Cave and Hare (1981), Chapters 4 and 7, Bornstein (1975) and Part II of (1985), Patrick and Rosovsky (1973) on Japan, or any text book or comparative economic systems, such as Gregory and Stuart (1986).

81 This was and remains the primary objective of Japanese planning which has always only minimally intervened in the functioning of markets. See Patrick and Rosovsky (1972) and Yamamura and Yasuba (1987).
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