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The Meaning of Efficiency

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CERLAC Working Paper Series

August, 2004

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Abstract:

Policy implementation within a democratic society calls for efficiency. But because policy concerns range over broad social and political-economic areas, it must be recognized that the efficient pursuit of one particular goal may conflict with the realization of some other, equally important social interest. Hence, efficiency for its own sake cannot be a policy goal.

This paper discusses the problems and complexities that arise in the pursuit of equity, stabilization, markets and trade, as well as the issues of social and environmental sustainability. Starting with the limitations of market efficiency when conventional requirements of social welfare are taken into account, it is argued that a more meaningful concept of social efficiency can be obtained with the help of the social development indicators elaborated by the UNDP, augmented by the sustainability indicators developed by the European Union during the last decade.

The Concept of Efficiency

Policies agreed upon in a reasonably open society need to be implemented as efficiently as possible. Yet efficiency for its own sake cannot be a policy goal. Social concerns range over broad social and political-economic areas, some of which may conflict with each other. Policies and implementation must take into account this complexity.[1] In this paper we intend to discuss the problems posed by such a broad context, as they relate to equity, stabilization, income, and trade, as well as issues of social and environmental sustainability. The primary focus will be on Third World countries, but many of the arguments will have general relevance.

Concentration on the efficient pursuit of one particular goal, for example economic growth, may work against the implementation of some other, perhaps equally important goals, such as equity or those involving environmental and social sustainability. But it may also be possible to find options that, like many naturally evolved biological systems, work in more than one desirable direction at the same time.[2] The opposite may also be true. Hence, the pursuit of efficiency calls for specifying the situations or policy problems to which it is meant to apply. For example, a monopolist or a cartel organization may be an efficient profit maximizer, but its monopoly practices may detract from social welfare and need to be curbed.

In the initial sections of this essay, the discussion focuses on market efficiency and its limitations when social welfare, as conventionally understood, is taken into consideration. The concept, which has a rather limited relevance outside narrowly defined economic analysis, can be made significantly more meaningful by reference to the social development indicators elaborated by the UNDP during the last decade, (fn. reference) to be undertaken in a later section specifically devoted to the concept of *social efficiency.*

The Traditional Concept of Efficiency

As used by free market ideologues, and even by well-meaning advocates of popular welfare, the call for efficiency derives from neoclassical economic theory, which has a narrow focus on resource allocation within a highly reductionist framework. The theory assumes that competition leads to efficient resource use, that producers—who are assumed to have perfect knowledge of all technical and market conditions—allocate resources to maximize profits, and consumers spend their incomes to acquire satisfaction-maximizing combinations of goods.

The theory abstracts from obstacles to competitive market behavior. Such obstacles include, among others, the central source of cost savings in modern production, that is, economies of scale, a basic factor underlying monopolization and non-competitive market organization. These scale economies—together with large discontinuities, another frequently encountered aspect of modern technology—make the theoretically efficient solution unattainable by means of the assumed incremental adjustments of a competitive market. Economists—who in the language of mathematics refer to this difficulty as one of nonconvexity—typically deal with this problem not as a central issue but as an afterthought, or a peripheral consideration, not unlike a family secret that should not be brought up when issues of efficiency are under discussion.

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[1] Richard Wolff (2002) in his critique of neoclassical and other traditional concepts of efficiency proposed the useful concept of *overdeterminism,* which negates the feasibility of identifying and measuring all the effects of any economic act, event, or institution.

[2] This is emphasized, especially in connection with policies oriented towards environmental sustainability, by Hawken et al (1999).

The theoretical problem is that market adjustments in the economy are *not* like scaling Mount Everest, where you are sure to reach the summit, no matter where on the mountain you start, so long as you keep moving upward. The summit is the most efficient point, and moving upward all the way, even in a fog, is all that the theory of a competitive market will offer. Yet, the economy is not like Mount Everest, but rather more like the Himalayan range, with many mountains of differing heights in the neighborhood. The market is not given a map or vision at a distance; that would instead be planning. And if all the economy can do is to move upward from an unspecified starting point, there is no telling on which mountaintop it will wind up. Thus, with any one of the great variety of historical starting points, a market economy is not likely to arrive at the most efficient peak but on an inferior alternate.[3]

An even more troubling weakness of the theory is that its core paradigm is that of a stationary, stable full employment equilibrium, which is assumed to be able to re-establish itself instantaneously whenever disturbed. It is a theory that is in contradiction with the fact that society is a living system, a biological entity, which is constantly subject to change, and hence cannot be either in a stationary, or in a growing steady state equilibrium.[4] Therefore, it makes no sense for such an equilibrium theory to be at the core of economics. Evolutionary economics exists as a side branch, but it is not the framework in which issues of efficiency and equity are being discussed. A core evolutionary theory would have to have a structure in which, crucially, mutations can play a key role.

No wonder that the most insightful theory of economic change, Schumpeter's theory of capitalism as creative destruction (Schumpeter, 1934)—for which biological mutations serve as an excellent metaphor—is in the paradoxical position of being accorded universal deference by economists, yet has never been brought into the core of the theory in whose terms efficiency issues have always been discussed.

The core theory of market equilibrium thus ignores that the acquisition of political or economic power may have a role in entrepreneurial decisions, and that the pains and pleasures of individual or social existence may come from various sources, in addition to production, trade and consumption of goods and services (Sen, 1977). It also excludes the fact that production frequently generates non-marketed byproducts (such as water or air pollutants), which adversely affect other producers and consumers. The existence of these *externalities,* along with monopolies, is disregarded in the definition of competitive efficiency.

Competition demands a market organization in which prices are determined by an impersonal interaction of many individual producers and consumers, such that individually none can affect market

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[3] In addition to undermining the supposed optimality of market adjustments, the Himalaya problem also calls into question the use of market prices for the decentralization of complex decisions (Vietorisz, 1968).

[4] A living system has to be in a continuous thermodynamic disequilibrium state sustained by energy flows. Only a system that is dead can be at or near thermodynamic equilibrium, and even then could not be there until its decomposition was essentially complete. A living system usually must have adequate stability for ensuring the continuity of the energy flows that keep it alive. In the economy these are generated by whatever it takes to sustain the population, such as basic consumption and fossil and renewable energy resources. These energy flows are expended in the processes of human life, including economic activities, such as production and investment, and the dynamics of technological change. They are also absorbed by population renewal and expansion, in technologically generated structures of increasing complexity, and in the accumulation of human knowledge and stored information.

prices or behavior by other market participants.[5] Even though it cannot be approximated in reality, this taken by itself could be judged a desirable form of market organization, were it not that the demand for competitive efficiency excludes concern for human rights, subsistence standards and the environment, and thus is contrary to the broad purposes of social and political economic development.

The definition of competitive efficiency also implies cost minimization of the outputs that form part of the final market equilibrium. To that end, the level of employment must not exceed the amount strictly needed for a given current output. The wage or input price must exactly correspond to its competitively determined level. In a labor-abundant economy competition could drive wages down to the cost of maintaining the minimal subsistence requirements of employed labor.[6]

In such an economy, when all resources, including labor, are assumed to be efficiently employed, consumer satisfaction—utility—is assumed to be at a maximum, that is, at a point where nobody's utility can be raised without lowering somebody else's utility. This condition is known as Pareto optimality. Note that it does not imply social optimality, because the market determined income distribution is most likely not socially optimal. Hence, the distribution of consumption among the people at large could not be socially optimal either.

In sum, the neoclassical model of the market, even if its highly abstract assumptions are accepted, falls short in at least four key ways. *First,* it ignores nonconvexity (the Himalaya problem) and with it scale economies, which are among the most important determinants of efficiency in a modern economy. *Second,* it ignores Schumpeterian mutations of creative destruction which are widely acknowledged to be the key dynamic of progress under capitalism. *Third,* it ignores externalities, which are among the main causes of the destruction of the biosphere; and *Fourth,* it assumes the relative (that is, Pareto type) maximization of utility, which embodies the flawed commodity-based criterion that more is better, instead of focusing on the social quality of life.

Real Markets

The market of economic theory is as much an abstraction as the theory itself. In contrast, the real markets, as they function, are fundamental and complex social-economic institutions. The question is, how much of the efficiency of the theoretical framework can be imputed to the real life institution. The answer is some, but not all.

The so-called magic of the market is fictional—except to those whose interest is to accept the unreal image projected by the theory. Nonetheless, in complex economies markets are—with some, albeit important, exceptions relating to social services, such as

[5] Note that in every-day discourse monopoly tactics may also be referred to as competition, but it is more accurate to call it rivalry, thereby expressing the monopolist's drive to control or eliminate actual or potential market participants.

[6] In competitive theory an input in excess supply is assigned zero value. In the case of excess labor supply, however, the actively employed labor has to be given sufficient wage payments to cover the cost of subsistence. The latter, as already observed by Adam Smith and Karl Marx, may be determined by social convention instead of physiological requirements (Lefeber, 2000). Actually, the possibility of labor being in excess supply is incompatible with the purely competitive model. Mathematical consistency implies that excess labor disappears, so that the subsistence wage is paid to exactly as much labor as that for which there is a demand. Models of equilibrium "with unlimited supplies of labor" postulate a precapitalist subsistence sector from which labor emerges when needed and into which it withdraws when it is superfluous—but these models do not describe a state of purely capitalist perfect competition.

education, health, housing, etc.—necessary for facilitating distribution and allocation. As such, they fulfill fundamental social and economic functions, but are at best very imperfect guides to socially desirable action. They cannot protect against monopoly, or bring about socially acceptable income distribution, or prevent pernicious misuses of private and public resources, such as the degradation of the environment. Nor can they overcome those gaps between expectations and reality that can cause social unrest and destructive conflict between capital and labor. Planned intervention and reasonable controls are society's defense against market processes that run against the social interest as generally understood.

Most neo-conservatives—except dyed-in-the-wool ideologues—recognize that there are frictions and obstacles which can hamper the smooth functioning of free markets. Nonetheless, they dismiss the problems, claiming that the latter are short run phenomena, and that if the markets are permitted to function freely, the markets themselves overcome them in the long run.

The error is the interpretation of the concepts *short run* and *long run*. Neither of these is a time related phenomenon. The short run is defined by the existence of a given set of conditions and institutions. As long as these remain fixed or unchanged, the short run persists. In contrast, in the long run everything is assumed to be variable. The relevant question is, can the markets become efficient as long as the underlying conditions and the institutions that give rise to the problems remain unchanged?

In reality, most of them are rigidly built into the economic and political structures. Institutions, including market structures, do not have the inherent capacity for reforming themselves. They were created, and are being maintained, for absolving specific functions, such as the promotion or the defense of particular private or political interests. In capitalist economies they serve the protection of private capital and market freedom. Powerful defenders of free enterprise do not accept or tolerate institutional changes for preventing monopolization and other forms of exploitation.[7] Hence, the short run impediments to market efficiency continue to dominate.

The Price System

The efficiency of markets depends on the price system. But the price system itself fails in several ways as an efficient guide to consumers' and producers' decisions. In competitive market economies prices guide supply decisions in response to demand backed by purchasing power. Since the poor have little or no purchasing power, the price system does not register their wants, nor does it signal to producers and distributors the need for providing basic consumer goods in adequate amounts for low-income consumers. For the price system to reflect the social interest, the poor would have to be endowed with adequate purchasing power. In other words, market prices cannot be regarded as socially efficient guides to consumers' and producers' decisions independently of considerations of income distribution, even in a hypothetical perfectly competitive market.

In turn, monopolists, instead of being guided by the price system, set prices to guide the markets according to their own interests, which most often differ from those of the public. Theory suggests that monopolist behavior can be controlled by setting price ceilings. But that is bound to discourage investment, which is counterproductive, particularly in fields where a single or a few firms can produce more cheaply than many firms. Under such conditions there is a strong argument for

[7] Change requires either the replacement of socially inefficient institutions or the imposition of social controls on the former, instead of cosmetic reforms. Change can also come about through Schumpeterian mutation, or under political pressure, or both.

government or public ownership, or for planned public-private ownership on the French or Japanese pattern. The argument becomes even more compelling in the case of massive and indivisible investments, especially in Third World settings, such as dams for river control or hydroelectric installations—and even some large manufacturing complexes in basic industries —which cause significant discontinuities and dislocations in existing human settlement and employment patterns. In such cases the price system becomes totally irrelevant as a guide to socially desirable decisions.[8]

The signaling power of prices is the strongest over a short time horizon. The signaling power diminishes dis-proportionately with longer time horizons. As a consequence, under-investment in projects with long gestation periods when market prices are low, and over-investment when they are high, are regular occurrences.

Externalities

Activities or processes that bypass the market (referred to above as externalities) cripple the price system. Such is the case of the indiscriminate exploitation of so called unowned natural resources — river and sea waters, fish stocks, air, forests, and so forth—the uses of which are considered to be freely available. The indiscriminate exploitation of such resources is undertaken without considering the cost of the damage done to them, because the cost is spread over the entire society, while the exploiter's individual share in the social cost is small relative to the private profit or benefit obtained from the activity. The appreciation or perception of the problem is aggravated by the insidious way in which the damage to natural resources shows up over time. It grows progressively, so that at first the damage may be barely noticeable, even though it turns explosive with the passage of time.

The populations at large may also be guilty of despoiling natural resources. Careless and wasteful resource use by the public exists in both developed and underdeveloped countries. But in the case of the latter it is frequently aggravated by the unavailability of an appropriate health and sanitation infrastructure, another instance where government intervention and/or ownership is an absolute necessity.

Myopia: Discounting the Future

The failure to recognize the consequences of indiscriminate resource use is social myopia. The causes are complex. First, as mentioned above, an individual's share of the social cost is small and may be insignificant relative to the private gain from the socially undesirable activity. The adverse long run consequences may be grievous, but the more distant they are in the future, the less significant they may appear in the present. At the same time, resource protection has current costs, which for the individual may outweigh the current value of his share of future benefits from unspoiled natural resources. The size of the discount of the latter increases with the length of the time needed for, and the sense of risk or uncertainty of, realizing the expected benefits. It is the psychology underlying the popular wisdom that *a bird in the hand is worth two in the bush*.

Society is different. Individuals face risks and have limited life spans. In contrast, the social time horizon has no appreciable limits. Furthermore, the social risk, if there is one, is less than the risk

[8] The location and timing of such major investments defines the basic thrust and form, the *gestalt,* so to speak, of regional development far into the future, a process which calls for democratic consent in an open society. Once such key investments are decided upon, they entail a cascade of secondary and lower-order investments that can be left to arrange themselves gradually and efficiently, under the guidance of market forces.

facing individuals, because particular individual losses are partially or totally offset by private and public gains. (For example, the assets—such as buildings or machinery—of a bankrupt establishment can be taken over by another user.) Hence, the social discount of the future must be lower than the individual, and in the limit it must be reduced to zero (Lefeber, 1992).[9]

Translated into policy, desirable projects that individuals would not or could not undertake on their own—because the discounted value of future benefits appears to them to be negligible or negative, or not quantifiable—must be undertaken by governments representing the social interest. Public infrastructure projects (transport, communication, water control, etc.) and the protection of the environment and natural resources come under this heading.

Nonetheless, governments have generally acted myopically by discounting the future in a way not unlike that of private sector investors. There has been a general lack of understanding of the issues, and a reluctance to assume responsibility for resource protection by the public sector. The international financial institutions and politically powerful corporations, estate owners and other high income individuals have been using whatever influence they have for eliminating government financed projects that do not advance immediate individual or commercial interests. Even tax/subsidy policies, which in many cases can be used to motivate ecologically sustainable behavior within a market framework, are only rarely employed.

Myopia is reinforced by a tendency for artificially induced demand and supply expansion in monopolized real markets, with adverse implications for sustainability. This will be taken up below.

Productivity

There are several ways to define productivity, but with capital and other resource stocks in the background, a simple and frequently used measure is output per unit of labor. But what output and what labor?[10]

In terms of output: aggregate measures of productivity attempt to estimate the value of the output by using prices for weighting the physical amounts of individual commodities. This raises the difficulty of determining the physical amounts for many kinds of services, or their possibly questionable substitutes. Furthermore, valuation based on market prices is burdened with the earlier discussed shortcomings of the signaling power of the price system.

In terms of labor: productivity is conventionally based on a measure of labor actually employed in production. This greatly overstates the productivity that society obtains from the totality of its labor force. For this there are two reasons.

First, whenever there is a significant amount of unemployment, the output-total labor force ratio is smaller than the

[9] Research by Daniel Kahneman, the 2002 Economics Nobel prize winner, shows that there is an inherent valuation bias between future *gains* and *losses*. This appears to be reasonable from both the individual and the social perspective, because expected gains compared with the present are necessarily putative while expected losses are considered against the factual status of the present. Thus, some degree of conservatism in regard to future initiatives versus the existing state of affairs is built into individual decision-making as well as into social decisions and cultural evolution. This is often appropriate but can be a serious problem when it works against attempts to turn society away from an environmentally or socially unsustainable course.

[10] If production entails purchased material inputs, value added per unit of labor is a more accurate productivity measure. Value added is the sum total of the wages and salaries, profits, rents and interests expended in the production process.

conventional output-employment ratio. If the rate of employment were to be increased by payroll subsidies or any other means, the output-total labor force ratio would correspondingly increase. This suggests the need for at least a partial measure of *social productivity,* defined as aggregate output per unit of employable labor in the labor force.

The second reason for the overstatement of productivity arises from the large loss of potential social value production whenever a part—often the overwhelming part—of the total labor force does not have access to the education and training that would allow it to attain its full human potential. As yet no readily applicable measure exists for this source of inefficiency, even though the resulting waste of human talent further diminishes the social relative to the private productivity—often, especially in Third World countries, to a truly massive extent.

Compared with the above major sources of social inefficiency, ignored by economic theory, the fine adjustments with which the theory is preoccupied represent second or third-order effects. Thus, in theory efficient labor utilization requires that the level of employment of a given type of labor (such as unskilled workers) should be carried to the level where its productivity in value terms, and the corresponding wage rates, are everywhere equalized. Nonetheless, in agriculture, which can efficiently produce with labor-intensive techniques, fear of labor unrest and claims of land reform frequently motivate landowners to displace labor by mechanized means. This raises the value product of some unskilled labor relative to others. Furthermore, in economies dominated by monopolies or foreign investors, production techniques used by producers are frequently more capital intensive than warranted by the abundance of the labor supply. Labor productivity in capital-intensive production being higher than in other sectors, producers using capital-intensive techniques restrict the rate of employment to what is best for their profit maximizing purposes. The restriction is enhanced by the monopoly practice of creating contrived scarcities. The theory remains silent about all this.

In certain industries, such as petrochemicals, high capital intensity is a technological necessity. In most other lines of production the capital - labor ratio is more flexibly adjustable, and in labor abundant countries it can be biased toward intensive labor use. But significant differences among sectoral capital intensities can lead to wage differentials among workers of similar qualifications, and the introduction of capital intensity in sectors that could efficiently produce with labor intensive methods causes labor displacement. The first is a potential source of social unrest and political turmoil, as when the Chilean copper miners struck against the government of Allende, and in the recent case of the Venezuelan petroleum workers striking against Chavez. The second contributes to destitution as illustrated by the case of Mexican agriculture (Lefeber, 1997).

If labor displaced by the introduction of capital intensive technology has no immediate access either to other employment, as is generally the case in labor surplus economies, or to extra-market subsistence activities, it has to look to alternatives, such as charity, public dole, or crime. All three represent costs that have to be born not by the producer whose excessive use of capital intensive techniques contributes to unemployment, but by others, such as the unemployed's family, or society at large. Because these costs cannot be recovered from the benefits accruing to the producer, the private gain from higher private labor productivity exceeds the social gain, which may even turn out to be negative.

Employment

Neoclassical economic theory implicitly assumes full employment. As an abstract proposition, full employment exists

if the entire labor supply, that is, everybody who wants to be employed at the going wage rate, can find employment (or self employment at a corresponding earnings rate). For statistical purposes, in various countries, as in the U.S. and Canada, the active labor supply consists of those who are employed and the unemployed actively engaged in job search. Those who desire work at the going wage rate but have given up the search as a hopeless effort, are not considered part of the labor force, and their unutilized labor time is not added to unemployment, even though they would reenter the labor market if the demand for labor were to increase. Similarly, the unutilized labor time of part time workers who cannot find full time employment is not counted as unemployment. It follows that the actual size of the labor force, so defined, varies with changes in the demand for labor, and the true size of unemployment is greater than its statistical measurements.

If there is unemployment, or a fall in the demand for labor, neoclassical theory assumes a smooth and rapid return to full employment. This is expected to take place with a fall in the market determined wage rates to a level that is sufficient to motivate increased labor use.

In reality the demand for labor and the selection of technology are determined by various factors, among which wage rates do play a role, but not necessarily a dominant one. Monopolistic profit motives, rivalry, preference for imported technology, and very importantly, certain social-political factors play determining roles. These latter are—among others—the above-mentioned fear of labor conflicts, the potential for violence, and landowners' fear of landless labor's claims for land redistribution. Furthermore, time pressures and organizational complexities may provide a bias against labor using techniques even in activities where labor intensity can be effectively employed, such as earth works.

Conventional efficiency considerations also ignore the fact that a strong demand for labor and a high level of employment have a fundamental social function. The social and economic work relations make up a set of horizontal and vertical linkages among the members of society and the institutions of the state. These linkages importantly contribute to the social fabric that sustains a democratic community. Unemployment ruptures the social fabric and as such, is a primary cause of social decay. Accordingly, the goal of high employment levels is more than just economic efficiency. The value of employment exceeds that of the goods and services produced by labor.

The greater the rate of unemployment, the greater must be the political-economic commitment to create work opportunities over and above what the market is capable of providing. But here a caveat is in order. The call is not for pyramid building, which under Keynesian conditions—that is, when the cause of unemployment is market failure instead of resource scarcities —could be acceptable, even if not necessarily recommended. The need is for employment in productivity enhancing *and* socially constructive activities. Public works for productive infrastructure, such as water control, road building or sanitation come under this heading.

Trade in Theory and Practice

The abstract justification of free trade is the theory of comparative advantage, that is, the application of the neoclassical theory to an international context. The framework, reductionist in the extreme, is used to show that under certain limited conditions, and subject to a very large number of abstract assumptions—including full employment—the trading partners can obtain larger amounts of goods and services than would be possible under autarchy. In other words, there are

commodity *gains from trade*. The process is assumed to advance efficiency by motivating partial or total specialization in the production of those goods that most rely on the relatively abundant inputs. Their owners are expected to benefit from the increased demand for their services or supplies. Hence, in a labor abundant economy the demand for labor would increase and wages would improve relative to rents and profits, thereby benefiting the working classes.

The argument for comparative advantage is not irrelevant, in the sense that in labor surplus economies there should be a propensity for using relatively labor-intensive methods. But strong qualifications are called for. One of these relates to technology. Consider the trade relationships between the US and India. The former is capital rich and a grain producer with capital-intensive methods. The other is labor abundant, also a grain producer, but with labor-intensive methods. Should the US export grains to India, and India to the US? It is a preposterous proposition. The paradox (associated with the name of Wassily Leontief) can be resolved only by means of some very abstract assumptions about how technologies and input qualities relate to each other.

The neo-classical theory assumes that under competitive conditions productive factors do not move across borders. In other words, trade (the exchange of goods) is assumed to substitute for factor movements. In reality, there is a continuous flow of labor from low to higher wage areas. Even more importantly, in recent years the productive capital that used to be the mainstay of domestic production in industrialized countries has been transferred increasingly to economically less developed, labor abundant countries. The motivation has been to take advantage of lower wage labor pools and, at the same time, pressure domestic high wage labor to accept lower productivity and lower wage employment. Then, if instead of competition, monopolies play an important role in investment and production—particularly when foreign investors are working with imported capital-intensive technologies—the theoretical expectation for increasing employment becomes questionable even in labor abundant countries. This raises questions about appropriate policies for the control of private and, in particular, foreign investment.

Evidently, trade is required for obtaining the foreign resources needed for debt service and to support domestic investment and basic consumption, where necessary. Furthermore, domestic across the board measures against the introduction of new technologies would be counterproductive. Contrary to the detrimental practice of subsidizing the use of capital relative to that of labor (see the extreme case of Puerto Rico), sectors that can efficiently operate with relatively low capital intensities, agriculture in particular, need to be protected against intrusion by labor displacing foreign investments (Lefeber, 1997).

Finally, there is the problem of imports of subsidized staples (food grains, etc.) and cheap, low quality substitutes (used clothing, plastic sandals, etc.) for domestic artisan products. Such imports may even run against the basic principles of comparative advantage, but are forced on the importing countries by the politically more powerful promoters of free trade. They can destroy the livelihood of large sectors of the rural and urban communities, which are then left destitute without alternative employment opportunities. Agriculture also has to be protected against the intrusion of patent protected genetically altered grain and animal stocks, which may in the short run increase productivity, but whose cost of propagation may be excessive and whose displacement of hardy, domestic varieties may cause an ecological disaster.

Trade related changes in production relations necessarily bring about changes in

income distribution. If these run against social justice, or equity, the *commodity gains from trade* cannot translate into welfare gains for the community at large. The so called compensation principle, that is, that the losers be compensated from the benefits accruing to the winners, is a specious argument, since there is neither a theoretical nor practical way for its implementation (see e.g., NAFTA). Even the rigorous interpreters of the neoclassical theory—which the neo-conservatives are not—can claim only that some trade is better than no trade. The implication is that without knowing the specific welfare effects of trade related income changes, it is not possible to determine how much and what to trade.

Of course, the above arguments are not accepted by the defenders of free trade and free capital movements. Even if they recognize that there are obstacles and inefficiencies associated with free markets, they claim that these are only short run phenomena which in the long run will be compensated for by the gains from free trade. Once again, the relevant question is the meaning of the short run. One must be clear about the fact that as long as the conditions which inhibit the realization of socially efficient trade remain in force, so does the short run, which may have a rather long time horizon.

Income Distribution

In market economies income distribution has a fundamental role in determining the distribution of consumption among various income groups as well as the composition of the corresponding bill of consumer goods. As such it is a basic determinant of social welfare. Its positive or negative effect on the development process—depending on the degrees of inequality—has been increasingly recognized by the theories of the last several decades (Hunt, 1989). In contrast, in neoclassical theory the distribution of income is not a determining factor, but an outcome of the market solution referred to as the *functional* distribution of income.

In neoclassical theory if the functional income distribution is not considered to be socially optimal, it can be redistributed, but in a way that does not interfere with the assumed efficiency of the competitive market. The functional income distribution should not be subjected to income taxation, which is claimed to have a negative effect on effort. Instead, non-distorting head tax/subsidy policies are recommended. These are regressive in the extreme, and were used primarily to keep the undesirable poor (mostly blacks) from voting in the US South.

But whatever tax instruments are used, personal income transfers can be difficult to implement. Furthermore, in poor countries the redistributable margins are small, even if the income inequalities are large. The most effective ways are asset redistribution by means of land reform, and policies for increasing the demand for labor (Lefeber, 2003). These are demonstrably more efficient means than the ones suggested by neoclassical theory, because in economies with unemployment or underemployment even subsidized additions to employment augment the level of production, always assuming that the added employment is in productivity enhancing activities. Furthermore, land reform contributes to employment or self-employment creation, because the labor intensity of cultivation is inversely related to land size (Sen, 1964). In either case, the cost of generating an added unit of employment can be partially or totally offset by the corresponding output increment.

In any case, no society permits totally untrammeled market operation, either in individual commodity or factor markets or, what is the other side of the same coin, with respect to income distribution. Even in societies where children are an asset of work and old age insurance, no one is likely to

argue openly that child prostitution should be regulated by supply and demand in a freely competitive market. And no reasonable person would argue that labor redundancy and unemployment should be eliminated by the free market in the same efficient way as was the case with the horse redundancy, when in the early parts of the 20th century horse traction was displaced by the introduction of cars, trucks, and tractors—that is, by bringing about a drastic reduction in the horse population. Therefore, the issue is not whether the political process should or should not circumscribe the area within which the market should operate, or ignore its consequences for income distribution. The need for intervention is an accepted given. The issue is rather in what directions and how tightly the boundaries on market operations should be set.

Institutions, Asset Distribution and Social Welfare

Real-life markets operate within social settings whose institutions and asset distributions have typically been created by historical exercises of political power, coercion, and often violence, even in the most advanced of democracies.[11] This is starkly visible in the Americas, where the starting date of asset redistributions and replacement of institutions can be reasonably fixed at 1492 AD.

Wherever capitalist markets currently dominate or are widespread, institutions and asset distributions continue to evolve in response to systematic interactions of political and economic power. Therefore one cannot take the concept of the market as a given fixed institution, as implicitly assumed by contemporary economic theory. Precisely where markets will function, under what conditions, and what separation will exist between the private and public spheres, these are themselves outcomes of evolutionary processes.[12] New market forms are continually emerging, so that qualitative changes in social relations predominantly arise not from the smooth adjustments postulated by competitive economic theory but from discontinuous transitions—the counterpart of biological mutations—whether they are brought about by Schumpeterian revolutions of creative destruction, or by the historical force of colonial conquests, or by social uprisings, such as the American, French, or Mexican revolutions.

The evolution of capitalist institutions has tended progressively to replace human relationships by commodity relationships. Mechanization in agriculture turns rural labor into wage workers whose basic welfare is no longer the landowners' traditional responsibility. In industry and the service sectors traditional work related institutions have changed into impersonal labor markets. The traditional social bonds have changed into a different type of social fabric in which cooperative economic and personal relationships have been replaced by an ever greater part of the working population becoming impersonal sellers of their services and buyers of commodities. This process is clearly observable in contemporary development.

The growth of capitalist institutional powers has permitted a growing separation

[11] Note that these institutions and asset distributions which represent the power relations within society, affect primarily the organization of production activities and remain largely hidden behind the veil of supply-demand interactions in the free market. This veiling offers significant protection to the status quo (Vietorisz, 1980).

[12] For example, water is currently being converted from a free good into a marketable commodity in many parts of the Third World. Also, various new markets in financial instruments and intellectual property are emerging currently, as are markets in the identity of wild plant species for pharmaceutical purposes in tropical forests.

between the living standards of the well-to-do, the low-income earner and the destitute. The gap between the luxury consumption and the range of social services available to the rich, and the economic hardship and the lack of access to such services of the poor makes the use of income statistics irrelevant for assessing the state of, and changes in, social welfare. As discussed below, alternative approaches are called for as guides for social action.

Are Markets Necessary?

In view of the broad range of negatives enumerated in the foregoing sections, the question may well be asked: is it at all worthwhile to put up with the market? The answer is yes. Markets perform various essential functions for which until now no workable alternatives have emerged.

First, markets operating within politically set limits in an open society can distribute consumer goods in a decentralized fashion with tolerable efficiency. To that end, the limits must include effective monopoly controls and means for ensuring the equitable distribution of basic social services. To assure the latter, in certain lines of socially important services, such as education, water, health and sanitation, and public housing, the government needs to replace markets. International economic transactions, trade and foreign investment also need to be regulated. Furthermore, effective measures have to be provided for the protection of natural resources, and the biosphere at large.

Subject to such limits and regulations, no rationing system can approximate the efficiency of reasonably competitive markets in coping with the complexity of the production and distribution of goods and services. This is particularly so when in the process of development the complexity rises above that which prevails in a primitive economic state.[13] Nonetheless, to ensure access to basic consumption standards among the low-income populations, and even under emergency conditions in more developed industrial societies, rationing of basic consumer goods can ensure not only social equity but also transparency in the widespread observation of equity.[14]

The second and perhaps the most important function of competitive markets—always within politically set limits in an open society—is that they give a socially legitimated outlet for individuality, creativity, initiative, and even for a reasonable degree of contrariness and egotism, all of which are the primary fount of technical and social innovation. As a consequence, markets have a unique ability to stimulate and incubate innovations. This is true not so much about the underlying inventions, that is, the emergence of new technical and organizational ideas but rather, the transformation of such ideas into practical production processes that displace established, less efficient practices.

Such innovations typically require resources, that is, startup capital by owners who are willing to risk its loss, which bureaucracies are frequently unwilling or unable to do. Particularly in developing economies, competitive markets, if supported by non-corrupt institutional and

[13] A leading consultant of the Hungarian Planning Office told one of the authors that the planning system prevailing in Hungary was probably the most effective way of helping a precapitalist society in transitioning to a low-level capitalist stage of production, but could then be expected to run into ever-greater difficulties in achieving further advances, given the increasing complexity of the economy.

[14] Rationing in Cuba was continued by popular demand at a time when the government would have preferred to drop it. The popular sentiment was that as long as ration cards existed, the government would see to it that people in fact had the income to buy the rationed amounts at affordable prices.

governmental structures, can distribute small and moderate-sized capital investments for the support of startup innovations more effectively than any other known option (North, 2003). However, the same cannot be said about massive investments[15] in markets dominated by monopoly power. The resulting mal-distributions of assets, income, and power—and in some cases massive dislocation of settlements and employment patterns—bring about social inefficiencies that may more than outweigh the possible inefficiency of central planning.

At this point the question arises, if the market performs essential functions which cannot be properly performed by non-market means, how should the operation of markets be arranged for best social efficiency? This is perhaps the key issue of the present essay.

The Efficiency of Government Action

The foregoing discussions carried implicit or explicit references to government intervention in markets and, more generally, in social organization. But there has been no discussion of what determines socially efficient government action. It is a complex problem which requires clarifying the concept of government.

It is useful to remember that government is not the same as the State, which is made up of a great number of institutions, among which government is only one, albeit a very important one. Furthermore, the government itself is a conglomerate made up of a large number of legal, legislative, military and administrative institutions. In turn, government action, that is, policy formulation and implementation, is a reconciliation of the inputs by its various constituent elements, and of the demands and limitations imposed by the other institutions of the State, such as the markets, public and private educational, health, business and various other organizations, religious establishments, the military establishment, unions, and so forth. The form of reconciliation is what politics is all about which, as recognized by an old adage, is best characterized as the art of the feasible. To varying degrees this is as true in totalitarian systems as in liberal democracies.

Remarkably, economic theory has no place for government. It enters the analysis through the back door, in the form of discussions of monetary controls and tax effects on effort and income, of price ceilings, quotas, and embargoes. As such, the theory takes the status quo as given, meaning that government enters the decisions of consumers, producers, and investors only implicitly. Yet in reality, government policies, or expectations of changes in policies, do affect market behavior and, reciprocally, the ups and downs of markets have an effect on policy formulation. More than that, the politically and economically powerful social sectors, the dominant economic and social classes have a direct influence on what the government decides or attempts to do by way of policy formulation and implementation. Again, this is as true in totalitarian as in liberal democratic societies.

The above is particularly relevant to the conduct of business by socialist or democratic socialist governments. If a government does not have adequate control over the economy, it has to rely to a large degree on the cooperation of the private sector for maintaining production and the flow of investment, as well as a high level of

[15] Such massive investments tend to give rise to equally massive economies of scale and discontinuities—the Himalaya problem mentioned earlier. While minor scale and discontinuity effects can be glossed over by decentralized markets with the "tolerable degree of efficiency" mentioned at the beginning of this section, large ones cannot. Unless brought under democratic political decision-making in the public interest, they facilitate monopoly control with its usual antisocial consequences (Vietorisz, 1968).

employment. This, in turn, means that policy formulation must take into account the private sector's concerns with respect to market controls and taxation. As discussed in previous sections, such concerns are frequently motivated by interests that dominate over social considerations as well as myopia with respect to current and future social welfare. It is also a potential source for clashes between labor and business, and as a consequence, between labor and government.

This is the area where the question of government efficiency becomes of first order importance, and at the same time most difficult to generalize. Nonetheless, one can identify certain requirements for efficient government action. Such are openness about means and purposes, listening to people's social and economic concerns, broad based consultation with groups affected by particular decisions, bringing together opposing interests for exploring ways for reconciliation, and communication about the course of events of concern by means of public discourse.

Social Efficiency

The above leads back to the issue of the social efficiency of markets. If both the government and the market are to be part of the solution rather than part of the failure to attain a well functioning society, then the criteria for government efficiency and for the social efficiency of markets cannot be treated separately from each other.

The burden of the discussion of the preceding discussion has been that in considering social efficiency, the effects of the market are inseparable from the functioning of the underlying institutions, the distribution of assets, and the resulting distribution of incomes. Thus the concept of social efficiency cannot refer to markets alone or to the government alone, or for that matter to civil society alone. Social efficiency inherently makes sense only when it applies to the social, economic, political, and cultural system as a whole. Furthermore, since it encompasses society as a whole, it cannot be dealt with at the level of abstract theory, without a careful consideration of real social issues. As discussed earlier, the major intellectual attempt to bracket such concrete issues by an abstract theoretical argument—the model of Pareto efficiency which rests on the mathematical criterion of temporal utility or preference maximization and bypasses questions of income distribution—fails by a wide margin.

A more precise statement is now needed for how the concept of social efficiency, which has been used in a more or less intuitive manner up to this point, should be interpreted and to the extent possible, quantified.

The UNDP indicators of social development mentioned in the introductory section offer a convenient, if far from perfect, starting point. These have been developed in response to the recognition that countries with comparable levels of economic development, approximately quantified by GDP per capita figures, differ widely in life expectancies, infant mortality rates, literacy rates, the social position of women, and other relevant measurable criteria—in all, some three dozen indicators tabulated in the UNDP Human Development Report of 2003. A composite of the four most important and widely and consistently available measures—that is, per capita income, life expectancy, infant mortality and literacy rates—has been defined as the UNDP Human Development Index (HDI).

While using the HDI as the basis of a social efficiency measure is the simplest way of proceeding, it is entirely feasible to adjust the composite of specific social indicators to the specific circumstances of a particular country or region. This involves judgments about which components to use, how to weigh the components, or how to apply them to particular situations. Thus for example, in the U.S. and other highly

developed countries, the indicators might be more informative if applied only to the lowest one or two quintiles of the income distribution where social problems related to poverty tend to be concentrated.

At this point a range of additional issues have to be taken into account which have been only relatively recently recognized to be sources of major social problems. Specifically, societies whose current functioning risks future ecological and economic disasters cannot be regarded as efficient, any more than a family whose current profligacy risks future bankruptcy.

A most important concern here pertains to the form taken by the profit motive, which lies at the core of a market system. It is an important motivating force if it is subject to strictly enforced limits imposed by laws and standards of fairness imposed by public opinion. But if the pursuit of profit is unbridled and enhanced by an ideology of rampant individualism, it becomes socially destructive. Countering it requires political action, both at the level of social mobilization and of the resulting government action.

Contemporary evidence indicates that such limits may not exist in some of the highly developed societies, and particularly not in societies dominated by neoconservative ideology, as is currently the case, for example, in the United States. Instead, rapid economic growth is pursued as an end in itself, in order to generate high profit levels, which then further contribute to the already highly skewed income distribution. The government contributes by encouraging rapid growth as a policy tool for trying to maintain high levels of employment.

This rapid growth needs to be fed by increasing levels of consumption stimulated by the credit policies of the monetary authorities, the huge government deficits, as well as by all available means of marketing and advertising by the private sector. Whether or not the resulting private and public consumption is of a type which is socially desirable—a topic in itself that is outside the bounds of this essay—it absorbs tremendous amounts of non-reproducible energy and other natural resources, and increasingly threatens the livability of the biosphere. And since the process is financed only partly out of current incomes, it weighs heavily on the welfare of future generations. In the meantime, the increasing polarization of incomes is bound to lead to growing political and social tensions.

The further the transition proceeds toward such a society, the more meaningless or even counterproductive it becomes to measure economic efficiency by the valuation of current output. Even the above discussed first-approximation criterion of social efficiency, the HDI, is inadequate, as it relates only to the state of current welfare. It is essential to expand its base of definition with a view to sustainability. The set of UNDP indicators of social accomplishments and shortcomings from which the components of a composite social efficiency measure have been or can be selected, has to be expanded by the inclusion of appropriate sustainability indicators. The most advanced work on such sustainability indicators has been undertaken by the European Union (Commission of the European Communities, 2004, p.36; Expert Group on the Urban Environment, European Common Indicators, 2003).

In sum, the key challenge of our day is to find ways for protecting ourselves as well as future generations from the alarming consequences of a system that stimulates current resource use beyond all reasonable limits, leading thereby toward a major sustainability crisis. To get a sense of the size and nature of the danger threatening society, indicators of sustainability need to be included in the construction of any composite social efficiency measure

Qualifications and Conclusion

Only by working with a concept of social efficiency rooted in concrete social problems, including those related to the welfare of future generations, can we move from narrowly economic and ultimately self-defeating considerations to a system of more humane values.

The critical revision of concepts of efficiency presented in this essay underlies the need to defend against undisciplined resource use. Capital and natural resources are scarce, and must not be wasted. Social considerations of the present and future compel a conscious effort to reach a balance between availabilities and uses.

To remedy wasteful resource use is not shock treatment, the favored approach of the IMF and the World Bank in structural transitions. Governments have to be pressured by public opinion at home and abroad to introduce gradual, progressive changes in the institutions that underlie the socially inequitable functioning of the market, to set limits on monopolies and other types of socially harmful market behavior, including the stimulation of irrational expansion of unnecessary and wasteful consumption.

In turn, the public at large also has to be made aware of certain basic realities of economic organization within a broader social and political context. There is nothing wrong with deficit financing, as long as the imbalances on the trade and capital accounts or the government budgets can be covered by domestic or foreign savings. But this requires a type of discipline which can only be obtained if people believe, first, that consent is in their broadly conceived interest and second, that the burdens and benefits of living up to that consent are distributed in a fair way among social groups as well as between the present and the future generations.

Instead of incomes policies—a euphemism for spending controls through artificially created depressions and unemployment—there must be socially just income, employment and redistribution policies. If the burden of economic stabilization is distributed fairly, and there is justified public confidence that the benefits will be returned as *social wages,* that is, as fair access to public education, health services, social insurance and a livable environment, then citizens at large need have no difficulty with underwriting the cost of stabilization. But this requires trust in the fairness and stability of, and the exercise of socially conscious political will by, a democratic government.

Appendix
Social Efficiency Indicators

The starting point for the construction of social efficiency measures is the set of the some three dozen UNDP Human Development indicators from which the Human Development Index (HDI) is constructed.

> The Human Development Report Office strives to include as many UN member countries as possible in the HDI. For a country to be included, data ideally should be available from the relevant international data agencies for all four components of the index (the primary sources of data are the United Nations Population Division for life expectancy at birth, the UNESCO Institute for Statistics for the adult literacy rate and combined primary, secondary and tertiary gross enrolment ratio and the World Bank for GDP per capita [PPP US$]). But for a significant number of countries data are missing for one or more of these components. In response to the desire of countries to be included in the HDI, the Human Development Report Office makes every effort in these cases to identify other reasonable estimates, working with international data agencies, the UN Regional Commissions, national statistical offices and UNDP country offices (UNDP, 2003, p. 190).

In keeping with the discussion of this essay, one way of defining social efficiency to a first approximation would be (i) to calculate the measure M(x) of the total social outcome of a country x by applying to that country some reasonable weighted combination of the UNDP social indicators; (ii) to calculate this same measure M(a), M(b), …, M(n) for other countries *a, b,…n*, which are at closely comparable levels of GDP per capita; (iii) to take a reasonable weighted average M_w of their individual measures M(a), M(b), …, M(n); and finally (iv) to define the social efficiency E(x) for country x as the ratio $M(x)/M_w$.[1]

This is of course just a first approximation, because it does not measure country x against what social outcome it *could* accomplish with its endowment of natural and human/social resources, but only against the social outcomes that other comparable countries can (again, not *could*) accomplish with whatever endowments *they* have. Comparability here is crudely based on what country x and the comparison countries manage to produce in terms of GDP per capita, and leaves out of account inefficiencies in the production of GDP per capita both in country x and in the comparison countries. Notwithstanding, this procedure with all its imperfections provides a beginning that can be progressively refined and improved. Most importantly, it moves the discussion away from the sterility of purely theoretical abstractions, into the realm of the concrete social accomplishments and shortcomings of a society functioning as a whole.

The method used in the construction of the above illustrative example can be

[1] If the Human Development Index (HDI) is chosen as the measure M, it should be considered that this index uses GDP per capita as one of its four components. This is desirable in so far as GDP per capita implicitly measures many aspects of social outcomes that are not otherwise represented in the HDI. Yet small GDP differences, within the group of countries used for comparison purposes in the example presented in the text, also become part of the measures M(a), M(b), M(n) involved in the calculation of E(x), thereby blurring the sharpness of E(x) as an efficiency measure. This can be avoided by using a modified version of the HDI that excludes its GDP per capita component.

applied to the inclusion of particular indicators:

(1) Indicators may be selected only from the UNDP set of Human Development indicators, as shown by the example above;

(2) Indicators may be selected only from the set of sustainability indicators compiled by the European Union. A list of 11 key indicators is given in Commission of the European Communities, 2004, p.36, with a more detailed discussion in Expert Group on the Urban Environment, European Common Indicators (2003);

(3) Indicators may be selected from both sets, in order to construct a composite social efficiency index with both UNDP Human Development based human development and European Union based sustainability components.

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