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## Legal Theory Lexicon: Efficiency, Pareto, and Kaldor-Hicks

### Introduction

Almost every law student gets some introduction to normative law and economics in their first year of law school. One of the basic ideas of normative law and economics is that the law should be "efficient." *But what does efficiency mean?* For economists, "efficiency" is a technical idea--with only a tangential connection to the use of "efficiency" in ordinary speech. In order to understand economic efficiency, we will look at what are called the *Pareto principles* and a related idea that is sometimes called *Kaldor-Hicks efficiency*.

In addition to explicating the idea of efficiency, we will take a quick look at some of the criticisms that might be made of this concept. Although many economists operate on the assumption that "efficiency" is an uncontroversial good, that assumption is controversial both inside and outside of the discipline of economics.

As always, the *Legal Theory Lexicon* is aimed at law students, especially first-year students, with an interest in legal theory. This is very much a "quick and dirty" look at a topic upon which whole books can be written.

### The Idea of Utility and the Problem of Measurement

There are several plausible formulations of normative economics, but almost all of normative economics begins with the fundamental idea of utility as a conception or measure of the good. Economists may disagree about the nature of utility, the relationship of utility to social welfare, and the role of welfare in public policy, but most (but not all) economists would assent to the abstract proposition that *ceteris paribus* more utility is a good thing.

Historically, one of the most important interpretations of utility is associated with the great English philosopher and legal theorist Jeremy Bentham. Bentham defined utility in terms of pleasure (and the absence of pain). Bentham argued that laws and policies could be evaluated by a "hedonic calculus"--the best policy produces the greatest number of "hedons"--units of pleasure. But Bentham's idea did not provide a workable basis for the science of economics, because there has been no workable method for measuring hedonic values. This assumption has been undermined in reliance by the work of some economists and psychologists, who have been trying to develop workable measures of "happiness." (For discussion of this development, see [Legal Theory Lexicon 068: Welfare, Well-Being, and Happiness.](#))

Contemporary economists have interpreted the idea of "utility" as a function of preferences--the subjective values that individuals place on states of affairs. If individual I prefers state of affairs X to state of affairs Y, then X produces more utility for I than does Y.

The move to preferences as the basis for utility offered economists the possibility of solving the problem of measurement. How can we measure preferences? In order to understand the way that economists answer this question, we need to distinguish between cardinal and ordinal interpretations of utility. An ordinal utility function for an individual consists of a rank ordering of possible states of affairs for that individual. An ordinal

function tells us that individual I prefers possible world X to possible world Y, but it doesn't tell us whether X is much better than Y or only a little better. A cardinal utility function yields a real-number value for each possible world. If we assume that utility functions yield values expressed in units of utility or utiles, then individual I's utility function might score possible world (or "state of affairs") P at 80 utiles and possible world Q at 120 utiles.

The distinction between cardinal and ordinal utilities is potentially important for utilitarianism, at least on certain interpretations. As a theory of evaluation, "utilitarianism" can be stipulated to refer to the view that an action is the best action if and only if the action maximizes utility when compared with all possible alternative actions. For technical reasons, utilitarianism requires both cardinality and full interpersonal comparability. But both cardinality and interpersonal utility comparisons are problematic. It is difficult to measure cardinal utilities for even a single individual.

And it is even more difficult to compare utilities among different persons. How can we compare the value that one individual, I1, assigns to consuming a glass of fine wine with the value that another individual, I2, assigns to imbibing a fine single-malt scotch? And some things seem even more incommensurable: how do we compare the value that Ben derives from viewing a beautiful photograph by Ansel Adams to the joy that Alice takes in serving meals to the homeless on Thanksgiving Day? Or Ben's satisfaction from solving difficult math problem with Alice's pleasure in a new pair of Jimmy Choo's? These examples suggest that the problem of interpersonal comparison may be compounded by the problem of incommensurability--the idea that some preferences may not be comparable on the same scale.

This point about the difficulties faced by utilitarianism is closely related to the history of welfare economics, the explicitly normative branch of economic theory. Both cardinality and interpersonal comparability pose measurement problems for economists. The challenge for welfare economics was to develop a methodology that yields robust evaluations but does not require cardinal and interpersonally-comparable utilities.

### **The Pareto Principles**

This is the point at which the Pareto principles arrive on the scene. Suppose that all the information we have about individual utilities is ordinal and not interpersonally comparable. In other words, each individual can rank order states of affairs, but we (the analysts or policymakers) cannot compare the rank orderings across persons. The weak Pareto principle suggests that a state of affairs P is socially preferable to state of affairs Q, if everyone's ordinal ranking of P is higher than their ranking of Q. Weak Pareto doesn't get us very far, because such unanimity of preferences among all persons is rare.

The strong Pareto principle suggests that state of affairs P is socially preferable to state of affairs Q, if at least one person ranks P higher than Q and no one ranks Q higher than P. Or to put it more colloquially: strong Pareto says that it is good to make one person better off if no one will be made worse off. Unlike weak Pareto, strong Pareto does permit some relatively robust conclusions. The so-called new welfare economics was based on the insight that market transactions without externalities satisfy strong Pareto. If the only difference between state P and state Q is that in P, individuals I1 and I2 engage in an exchange (money for widgets, chickens for

shoes) where both prefer the result of the exchange, then the exchange is Pareto efficient—and hence satisfies the strong Pareto principle. A state of affairs where no further Pareto efficient moves (or trades) are possible is called Pareto optimal. The assumption about externalities is, of course, crucial. If there are negative externalities of any sort, then the trade is not Pareto efficient. (A "negative externality" here simply means that at least one person, e.g., individual I3, prefers the the state of affairs in which the trade does not place.)

### **From Pareto to Kaldor Hicks**

Because Pareto efficiency assumes no negative externalities, it has significant limits as a normative concept. For example, there are many questions of legal policy in which externalities are particularly important--pollution is a classic example. If I operate a factory that pollutes the air or water, my action may cause harms to my neighbors. If even one person would lose (as measure by that person's preferences) by the move from state P to state Q, then that move is not Pareto efficient. So if Pareto efficiency were the only normative principle available to law and economics, the consequence would be that economics would have nothing to say about many of the most important legal questions, e.g. many questions of environmental law. (The point in this paragraph connects to the Coase Theorem, which suggests that the Pareto efficient outcome will be reached so long as it isn't precluded by transaction costs. See [Legal Theory Lexicon 002: The Coase Theorem](#)).

Kaldor-Hicks is a technique for extending the normative implications of economic analysis. Here is how it works. We take a situation in which there are externalities, e.g. pollution that affects third parties. Let's assume that markets can't reach a *Pareto-efficient* outcome. That assumption might be accurate because of high transactions costs, as in the case where the pollution impacts on so many individuals that bargaining is impractical or costly. Counterfactually, however, we can imagine that there were zero transaction costs. We can then ask what outcome would occur if those who were effected by the externality (the pollution) entered into a Pareto-efficient bargain that compensated them for their losses. Outcomes that would be *Pareto-efficient* if there were zero transaction costs are *Kaldor-Hicks efficient*.

Kaldor-Hicks extends normative law and economics to a wide range of situations in which externalities and transaction costs prevent markets from reaching Pareto-efficient outcomes.

### **Criticisms of Efficiency**

Does efficiency (either Pareto or Kaldor-Hicks) provide an attractive normative yardstick by which legal policies may be judged? That's a complex question, but we can quickly explore a few critical ideas:

**Wealth Effects** When Pareto is applied to market transactions, preferences (or utility) is interpreted as a function of willingness to engage in market transactions (or willingness to pay). But willingness to pay is a function of wealth. Thus, someone who is very poor may be willing to engage in degrading or dangerous work, because they have no real alternative. But this does not mean that the efficient transaction is better than non-Pareto-efficient alternatives, which might involve a redistribution of wealth that would obviate

willingness to engage in degrading work. (These alternatives will not be Pareto efficient, assuming that redistribution would not be preferred by all, including those whose wealth is being redistributed.)

**Bad Preferences** Pareto and Kaldor-Hicks assume that state A is better than state B on the basis of individual preferences. But preferences aren't fixed. Preferences can change for a variety of reasons and some preferences may be better than others. For example, the preference to sexually abuse children is considered evil--satisfying it is not a moral good. Efficiency takes preferences as a given: it can't tell us whether the law should attempt to shape or alter preferences. But outside of the discipline of economics, there is almost universal agreement that satisfaction of evil preferences is intrinsically bad. And many people believe that society has a legitimate interest in undertaking measures that will change such preferences.

**Kaldor-Hicks and Rights** Kaldor-Hicks characterizes a move from state P to state Q as efficient even if a third party is injured by the move. That injury may involve unfairness or a violation of the third party's rights. From a consequentialist perspective, rights violations may have no significance in themselves, but deontological normative theories do afford moral significance to rights. From a deontological point of view, taking rights seriously may require government to forbid some Kaldor-Hicks efficient transactions.

### **Efficiency & Social Welfare Functions**

Some economists move beyond Pareto and Kaldor-Hicks and embrace what are called "Bergson-Samuelson Social Welfare Functions." There is a separate entry on this idea ([Social Welfare Functions](#)) in the Legal Theory Lexicon, but the general idea is to reintroduce interpersonal comparability for individual utilities. The key difference between Kaldor-Hicks and Bergson-Samuelson arises in cases where the hypothetical compensation seems unusually large, and an extreme version of this would be the case of someone who would not accept any level of compensation--the hold out problem. Bergson-Samuelson permits us to assign an interpersonally comparable utility value to the welfare that the "hold out" would lose, and that value may be much lower than the demanded compensation would suggest.

### **Conclusion**

Efficiency is one of the bedrock ideas for normative law and economics. The point of this *Lexicon* entry is to give you the tools to understand what economists mean by efficiency.

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