

## Second and Third Best Theories

The theories of the first, second, and third best are concerned with public policies to achieve the best possible economic outcome, but differ with respect to the treatment of the constraints. In the "first best," only resource constraints limit economic outcomes. In the "second best," distortions, e.g. from monopolies and externalities, also limit outcomes. The third best will be considered at the end of this entry.

SAMUELSON (ch. VIII) provides a useful exposition of the welfare economics that underlies the theory of the second best. That theory supposes a benevolent policy maker whose objective can be formulated in terms of a social welfare function  $W = F(u^1, u^2, \dots, u^S)$  for individual utility levels  $u^s$  of the  $S$  individuals in the economy. Each individual's utility depends on his consumption bundle. The first-best choice situation is one where the objective function is maximized subject to a constraint that reflects initial resources and given technology. The necessary conditions for an optimum dichotomize into two sets of conditions:

- (i) the first-best Paretian conditions: between each pair of commodities, the marginal rate of substitution in consumption is equal to the marginal rate of transformation in production, or  $MRS = MRT$  and
- (ii) the first-best distribution conditions: between each pair of individuals, income or wealth is distributed in a way that reflects some ethical judgment of the best distribution.

The Paretian conditions are realized if markets are competitive and complete. Samuelson poses the question, "What is the best procedure [that is, the best public policy] if for some reason a number of the optimum conditions are not realized?" His answer is: "A given divergence in a subset of the optimum conditions necessitates alterations in the remaining ones." (p. 252). This is the theory of the second best.

LIPSEY & LANCASTER present a simple proof, give many examples of applications, and formulate the most famous statement of the

theory, but in terms only of the first-best Paretian conditions:

“[I]f there is introduced into a general equilibrium system a constraint which prevents the attainment of one of the Paretian conditions, the other Paretian conditions, though still attainable, are in general, not desirable.”

In the Lipsey-Lancaster formulation, the constraint is a distortion of the form  $MRS = k MRT$  with  $k$  assumed to be a constant "for simplicity;" and violating other attainable Paretian conditions is equivalent to introducing other distortions.

The theory of the second best was at first thought to suggest that the ranking of free trade and autarky becomes problematic in the presence of market failures. A resolution of this problem is in BHAGWATI, who shows that (1) if a distortion exists, the ideal policy is one that directly affects that margin and that margin alone, so that it eliminates the distortion and restores the first best. Any other policy will create a new distortion and preclude the first best. (2) If the ideal policy is not available, then a small dose of a policy that has some effect on the distorted margin is better than no policy at all, because the initial marginal welfare gain from mitigating the distorted margin is of first order while the initial welfare cost from introducing the new distortion is of second order. (3) The optimal level of this alternative policy will fall short of correcting the distortion, because the final marginal corrective effect is of second order while at that point, the by-product distortion is of first order.

BHAGWATI & RAMASWAMI illustrate the following example graphically. When the source of the distortion is a factor market imperfection, the ranking of policies is — *first best*: factor tax cum subsidy; *second best*: production tax cum subsidy; *third best*: tariff (or trade subsidy). The case of the optimality of free trade in a small open economy under an appropriate domestic policy is thus restored.

The Lipsey-Lancaster formulation of the theory of the second best begs the question of why the distortion that makes the economy second best is out of bounds for policy makers, and it says nothing about whether the first-best distribution conditions will continue to hold in a distorted economy. HOFF shows that if the distortion arises because of adverse selection, moral hazard, or incomplete contracting, then the magnitude of the distortion depends on the distribution of wealth. The reason is that an individual's ability to deploy sanctions, collateral, or other contractual provisions to

get around a problem of imperfect information or imperfect commitment depends on his own wealth and on macrovariables, such as interest rates and wages, which are influenced by the whole distribution of wealth. Thus, the distortion can be written in the form  $MRS = k(w^1, w^2, \dots, w^s, \dots, w^S)$ , where  $w^s$  denotes the wealth of an individual, and the function  $k(\cdot)$  captures the idea that the magnitude of the distortion depends on the distribution of wealth. This leads to the second theory of the second best to complement the Lipsey-Lancaster formulation:

"If there exist restrictions on transactions required for first-best Pareto efficiency...then the marginal equalities that describe the optimal distribution of wealth will, in general, also be changed."

HOFF & LYON trace out one implication of this theorem for income distribution. If the economy is distorted because individuals lack sufficient wealth, a tax-transfer scheme that creates a form of collateralizable wealth can increase welfare and in some cases make everyone better off, even when the tax scheme introduces a new distortion into the economy.

GREENWALD & STIGLITZ show that "the distortions that arise from imperfect information [about the qualities of goods, the actions of the insured, etc.] often look analytically like externalities of the familiar technological sort, and viewing them in this way helps identify the welfare consequences of government interventions." A simple example is the following. The moral hazard arising from the provision of insurance causes people to self-protect too little. There is thus an externality akin to a technological externality: "the price an individual pays for insurance depends on the average level of accident avoidance of those who purchase insurance, which represents an externality to an individual purchaser." Subsidizing those goods whose consumption encourages an individual to self-protect more, and taxing those goods whose consumption encourages an individual to self-protect less, will reduce the welfare cost from this externality. But such commodity taxation, by causing prices to diverge from marginal costs, introduces a second welfare cost. The second-best optimum occurs where the sum of the two welfare costs is minimized. Greenwald & Stiglitz show that this involves differential commodity taxation. For example, fire extinguishers should be subsidized if having a fire extinguisher reduces accident damage, and alcohol should be taxed if its consumption causes individuals to drive more recklessly.

Objections to the theory of the second best are first, that it posits a benevolent policy maker, and second, that the policy

recommendations depend on the taste/technology specification of the model and the latter are difficult to assess empirically. The theory of the third best, presented in NG (ch. 9), addresses the latter objection. He shows that in specific cases where the policy maker lacks the information to carry out the second-best policies, the policy maker should target only the known distortion, and not seek to mitigate its welfare cost by introducing other distortions into the economy.

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## *References*

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