Pigovian Analysis

The starting point of the Pigovian welfare analysis is the notion that there is a resource allocation problem that can be optimally solved. Through his work, Pigou made clear that society was faced with the choice of how to allocate scarce productive resources to competing ends and was to maximize total social welfare. In practical terms, this reduced to maximizing economic welfare, "that part of total welfare which can be brought directly or indirectly into relation with a money measure". Pigou was concerned about the channeling of "real" factors of production to their best uses. He saw particular configurations of factors of production as yielding a measurable worth of total output and sought that arrangement generating a maximum value.

After setting the main problem of inquiry as 'the allocation of real factors of production to maximize the total value of output', Pigou tried to describe some characteristics indicative of an optimal configuration and define deviations from this optimal solution as inefficient. A crucial part of the analysis was the concept of changes in output resulting from a movement of resources from one use to another. Pigou defined marginal net product as 'the ' difference between the aggregate flow of product for which flow of resources, when appropriately organized, is responsible and the aggregate flow of product for which a flow of resources differing from that flow by a small. (marginal) increment, when appropriately organized, would be responsible'.

Pigou then drew a distinction between social and private marginal net product. The marginal social net product is the 'total net product of physical things or objective services due to the marginal increment of resources in any given use or place, no matter to whom any part of this product may accrue'. It might happen, for example, that costs are thrown upon people not directly concerned, though, say, uncompensated damage done to surrounding woods by sparks from railway engines. All such effects must be included-some of them positive, others negative elements in reckoning up the social net product of the marginal increment of any volume of resources turned into any use or place. The marginal private net product is that 'part of the total net product of physical things or objective services due to the marginal increment of Pigovian vs Paretian resources in any given use or place which accrues in the first instance i.e., Approach prior to sale to the person responsible for investing resources there'. In some conditions this is equal to, in some it is greater than, in others it is less than the marginal social net product. '

In a first pass through the problem, assuming no costs of resource movement, Pigou noted that a necessary condition for a maximum is that the marginal social net product (MSNP) of each resource employed in any use or place be exactly equal. Were resources to be distributed so that the MSNP of each factor of production was unequal, the total value of output could be increased by moving resources from uses with lower MSNP to those with higher MSNP. This straightforward application of the equimarginal principle is the key to Pigou's analysis.

The natural extension to the notion of an ideal, global optimum is consideration of impediments that block the realization of the best possible result. Starting from a decentralized system in which self-interested resource owners make decisions concerning the employment of their labor and capital, Pigou presented a framework that paired "obstacles to free movement" and divergence of private from social marginal net product as two fundamental I elements that prevent resources from flowing to their best uses.

Obstacles to free movement are composed of 'costs of movement and imperfect knowledge'. For Pigou, costs of movement include 'not only the payments to the agents who transport factors of production from one place to another ("promoters, financing syndicates, investment trusts, solicitors, i bankers and others", but also the imperfect divisibility of productive i resources'. De Serpa points out that Pigou's costs of movement can be broadly interpreted to include 'transactions costs' of every type (principal-agent, holdout and similar problems). In other words, it would seem more correct, to consider Pigou's overarching category, "obstacles to free movement," which encompasses both costs of movement and imperfect knowledge, as the appropriate counterpart to today's "transactions costs."

When the assumption of no costs of movement is relaxed, Pigou modifies the optimal solution to be one in which the MSNP of each resource diverges by less than the cost of movement. Obviously, if the gain from driving two MSNPs to equality is outweighed by the cost of the movement, then such a move is inefficient. Thus, in the presence of costs of movement, a given configuration might show some inequalities in MSNP yet may be the best arrangement, not indeed absolutely, since if there were no costs, a better arrangement would be possible, but relatively to the fact of the initial distribution and the existing costs of movement.

Pigou also discussed second order conditions and considered the implications of several local maxima. He offered the possibility that State action might be "justfled" if it could 'yerk the industrial system out of its present poise at a position of relative maximum, and induce it to settle down again at the position of absolute maximum-the highest hill-top of all. Later, however, he adds that worries about relative versus global maxima are a "secondary matter" (see Hla Myint, "Theories of Welfare Economics", Harvard University Press, 1948, p. 128).

After discussing how imperfect knowledge can, like costs of movement, prevent the attainment of an optimal resource allocation, Pigou turned to the welfare Economics issue of divergence between private and social marginal net products. It is important to note that Pigou sees obstacles to movement and divergence of private and social net product as separate, but possibly concurrently operating factors, either of which may be manipulated by the State in order to effect an improved allocation of resources.

For Pigou, the problem facing society is one of allocating resources so that the total value of output is maximized. He makes extensive use of the "$owing resources" metaphor: A flowing stream of resources is continually coming into being and struggling, so far as unavoidable costs of movement allow of this, to distribute itself away from points of relatively low returns towards points of relatively high returns. A clear signal of the performance of any observed configuration of resources is the marginal social net product of each resource. There is an answer to society's resource allocation problem and, thus, deviation from optimality cannot only be judged inadequate, it can be improved.