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Pigou: an extension of Sidgwickian thought

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I. *Introduction*

Basic concepts of early welfare theory were attributed to the work of A. C. Pigou. As Marshall's successor in the chair of Political Economy at Cambridge in 1908, Pigou was in a position to have his ideas promulgated by many. However innovative Pigou may have been in other respects, many of his major theoretical contributions to welfare analysis were actually based upon pre-Marshallian theoretical concepts and were dressed in the analytical apparatus conceived by Marshall. Furthermore, a major element in this pre-Marshallian thought was the work of Henry Sidgwick.

Of the writers prior to Marshall, Mill is usually considered the main channel through which the direction of classical economic thought concerning laissez-faire was altered. However, Sidgwick's comprehensive approach to the issue of market failure was more fundamental than Mill's observational approach. Sidgwick did use Mill's analysis as a point of departure, examining and expanding Mill's cases of digression from a perfectly functioning market in order to direct his ethical concepts for use in practical applications. He took the ideas that Mill proposed and subjected them to detailed analysis; he sought the logical justification for Mill's suggestions about government interference.

Pigou, as a disciple of Marshall, was trained in the analytics of the market process. Marshall viewed himself as a part of the continuing line of the defenders of laissez-faire, a defense based upon Ricardian theories. However, his emphasis on discussion of pure analytics and disregard of innovative approaches to policy making was a side step in the progression of economic thought which stressed ways to maximize total welfare. Therefore, when Pigou sought to proceed with the problems of external effects and government solutions, he had to circumvent the newly founded Marshallian tradition at Cambridge and return to the Sidgwick-Mill approach. The result was Sidgwickian philosophy couched in Marshallian methodology.

Sidgwick's work in political economy has not gone unnoticed, although many historians of thought regard Sidgwick as merely an expositor of Mill.[1] Hutchison, however, introduces Sidgwick as "the last major English moral philosopher who made a noteworthy contribution to political economy," and looks briefly at Sidgwick's analysis of laissez-faire deficiencies and distribution in relation to the functions of the state.[2] Generally, authors of treatises on the theory of welfare economics have been more willing to give Sidgwick credit for his efforts than historians of thought. Hla Myint observes Sidgwick's influence in the construction of the foundations of modern welfare economics, and Baumol refers to Sidgwick's welfare analysis as "penetrating," while noting the Pigovian connection.[3]

The purpose of this article is to provide a comparative analysis of the welfare contributions of Sidgwick and Pigou. The study will bring to light the similarities and differences between Pigou's work and the earlier work of Sidgwick and show how Pigou modernized Sidgwick's thoughts by imposing Marshallian analytics on them.

II. *The Measurement of Welfare*

Despite semantical differences, the similarities between the basic welfare considerations of Pigou and Sidgwick are obvious. Sidgwick and Pigou both sought to maximize the same general welfare criterion based on utilitarian ethics. In the *Economics of Welfare*[4] Pigou popularized the word "welfare" as the embodiment of the utilitarian goals of happiness and well-being, and he concluded that increases in total welfare were the same as increases in economic welfare, but economic welfare had the advantage of being measured by the "measuring rod of money."

Sidgwick used more traditional utilitarian phrases to describe the

1. See E. Whittaker, *A History of Economic Ideas* (New York, 1940), pp. 163, 226, and 349; M. Blaug, *Economic Theory in Retrospect* (Homewood, Ill., 1968) pp. 80, 280, and 604; and J. Schumpeter, *History of Economic Analysis* (New York, 1954), pp. 408, 433, 540, 671, and 805–6.

2. T. W. Hutchison, *A Review of Economic Doctrines: 1870–1929* (Oxford, 1966), p. 50.

3. U. Hla Myint, *Theories of Welfare Economics* (Cambridge, Mass., 1948), p. 125, and W. Baumol, *Welfare Economics and the Theory of the State* (New York, 1952), p. 130.

4. An extension of *Wealth and Welfare*, published in 1912, the *Economics of Welfare* (1920) was a revision and explanation of key points. The following abbreviations will be employed in making reference to the main works of Pigou cited here:

EW: *Economics of Welfare* (4th ed., London 1932).

SAL: "State Action and Laissez-faire," in *Economics in Practice* (London, 1939); p. 112–28.

SAWE: "Some Aspects of Welfare Economics," *American Economic Review* 41 (June 1951): 287–302.

social optimum—"some desirable result not for an individual but for a political community or aggregate of such communities."[5] He sought the greatest (community) utility or satisfaction from some action. Furthermore, Sidgwick examined the possibility of adopting some money measure of well-being, but concluded that owing to the difficulties in measuring wealth and value, "the real exactness of economic . . . estimates is generally overrated" (p. 397). The concept and the problems of welfare measurement were not ignored by Sidgwick, but were couched in more traditional terms.

However, in "Some Aspects of Welfare Economics" (1951; SAWE 287–302) Pigou's approach to the concept of welfare parallels Sidgwick's in terminology as well as in thought. Pigou wrote:

> Welfare economics is concerned to investigate the dominant influence through which the economic welfare of the world, or of a particular country, is likely to be increased. The hope of those who pursue it is to suggest lines of action—or non-action—on the part of the State or of private persons that might foster such influences [SAWE 287].

Pigou continued with the comment that money measures are not accurate, and that satisfaction must be compared "in principle." And finally, in examining the meaning of "satisfaction," he concluded that satisfaction is synonymous with utility, and therefore man's welfare is made up of his utilities. This is no more than a repetition of the basic logic behind Marshall's system, but the point is clear. Pigou's concept of "welfare" is not clearly a progression over utilitarian concepts, *and*, since in the last resort Pigou reverted to the use of "utility" to connote his ideas, he himself may have doubted the clarity of his advance.

The *Economics of Welfare* is built around the concept of welfare as defined and related to the size and distribution of the *national dividend*. Although Pigou's analysis of the problem of improving social welfare has as one of its starting points Marshall's doctrine of maximum satisfaction, as his thoughts proceeded he sought a general framework for investigation. He eschewed Marshall's partial equilibrium consumers' surplus approach, leaving Marshall's analysis for use in solving specific cases.

To examine a movement toward higher social satisfaction Pigou set up dual criteria: first, an increase in the national dividend without

5. H. Sidgwick, *The Principles of Political Economy* (3d ed., London 1924). Compare this with Oser's implication that Pigou is to be credited with the emphasis on the fact that the welfare of each need not imply the welfare of all; see J. Oser, *The Evolution of Economic Thought* (New York, 1970), p. 379.

any increase in the supply factors, and second, a transfer of wealth from the rich to the poor:

> (1) Generally speaking economic causes act upon the economic welfare of any country, not directly, but through the making and using of that objective counterpart of economic welfare which economists call the national dividend or national income [EW 31].
>
> (2) Any cause which increases the absolute share of real income in the hands of the poor, provided that it does not lead to a contraction in the size of the national dividend from any point of view, will, in general, increase economic welfare [EW 91].

In regard to the first criterion, Pigou's thought can be interpreted as meaning that where there are insurmountable difficulties in measuring the national dividend as a total figure, an increase in its total value—brought about either by increasing some good without diminishing others or by transferring factors to activities in which their social value is higher—is deemed an improvement in welfare, provided that the share of the poor is not thereby reduced. As for the second criterion, Pigou asserts that any reorganization of the economy which increases the share of the poor without diminishing the national dividend is accepted as a gain in social welfare.[6]

Like Pigou, Sidgwick specified the signs which would indicate an increase in welfare. In the Art of Political Economy, Book II of his *Principles*, Sidgwick examined the criteria to be used in determining an increase in community happiness: (1) to make "the proportion of produce to population a maximum, taking generally as a measure the ordinary exchange value, so far as it can be applied," and (2) to "rightly" distribute "produce among members of the community, whether on any principle of equity or justice, or on the economic principle of making the whole product as useful as possible" (p. 397). It can be seen that Sidgwick's first proposition states that the maximization of the national dividend is one goal in establishing the highest level of social well-being, and the second proposition seeks a redistribution of income consistent with some (undefined) sense of justice or consistent with the maximization of total social utility. The similarities between Sidgwick's propositions and Pigou's are evident.

6. Between 1912 and 1924 Pigou included a third main proposition to advancing economic welfare (in *Wealth and Welfare* and the first edition of the *Economics of Welfare*, but withdrawn in subsequent editions): "any cause which diminishes the variability of the national dividend, provided that it neither diminishes its volume nor injures its distribution, will, in general, increase economic welfare." This case for macroeconomic stability was later dropped as a welfare consideration. See T. W. Hutchison, *Positive Economics and Policy Objectives* (Cambridge, 1964), pp. 144f.

The first proposition espoused by each offers no problem. Increases in the value of the national dividend as an indication of increases in the welfare of the community are usually accepted without question. But the second proposition does create a difficulty. Marshall had observed that one of the major criticisms of his doctrine of maximum satisfaction was that it assumed that the marginal utility of income was the same for all. He said that the negation of this fact in reality made his doctrine limited in practical applications. Pigou used his second proposition—that transfers of money from the rich to the poor increased total satisfactions—*based* on the assumption of diminishing marginal utility of income. In defense of this position he wrote:

> This reasoning will not appeal to anyone who believes that people [who] are now rich are different from people now poor, having in their fundamental nature greater capacities for enjoyment. . . . I see no reason for believing anything of the sort. If we agree that representative members of the two groups are probably by and large pretty much alike, the argument from the law of diminishing marginal utility holds [SAWE 300].

Although Sidgwick doesn't specifically mention the assumption of diminishing marginal utility of income in his proposition, it is implicit in his concept of an "equitable" or "just" distribution.[7] This is especially true in the light of his qualifying phrase regarding maximizing *total* utility; his specification of "making the whole produce as useful as possible" should be considered an extension of his thought "that any given quantum of wealth is generally likely to be less useful to its owner, the greater the total of private wealth of which it forms a part" (*Principles*, p. 160).

Therefore, in identifying welfare and in the general qualifications for a welfare criterion, Pigou is not original. He used Marshall's doctrine of maximum satisfaction as a starting point, but using it alone would not have yielded any positive results for a full analysis of welfare. Therefore, Pigou looked at Sidgwick's pre-Marshallian analysis—and here he was able to find a clear meaning for "welfare." Not only was the terminology consistent with Pigou's need for the examination of how to maximize the total well-being of the community, but also in Sidgwick's work, the extension of Pigou's basic criteria can be found.

7. Sidgwick noted the relativity of justice. Each country and age decides its own code: "Actual human beings will not permanently acquiesce in a social order that common moral opinion deems unjust." In the context of the "justice" of socialism Sidgwick expressed a Millian idea: "I object to socialism not because it would divide the products of industry badly, but because it would have so much less to divide." See *Principles*, pp. 499, 516.

Pigou sought an organized analysis of the whole question of economic welfare. With this goal in mind, he presented his two propositions. Sidgwick had analyzed these propositions more than a half-century before.

III. *Marginal Social Net Product Versus Marginal Private Net Product*

To explain the divergences from the welfare maximum, Pigou introduced the terms marginal social net product and marginal private net product. In this, his work was genuinely innovative. He clarified and identified the general case of divergence and could apply it to specific instances. Sidgwick, also, had a generalized concept of divergences from the welfare maximum. However, it was less concise than Pigou's. This section will examine the similarities of these general concepts.

After having defined welfare and specified how changes in it could occur, Pigou remarked that many imperfections and many obstacles to the most efficient use of social resources remain, "although the free play of self-interest, so far as it is not hampered by ignorance, tends, in the absence of costs of movement, so to distribute resources among different uses and places as to render rates of return everywhere equal" (EW 144). In order to discuss optimal production in cases where the price system proved inefficient, Pigou introduced the terms marginal social net product and marginal private net product. These he defined and explained:

> (1) 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 . . . that costs are thrown upon people not directly concerned, through, say, uncompensated damage done to surrounding woods by sparks from railway engines. All such effects must be included—some of them will be 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, and
>
> (2) marginal private net product is that part of the total net product of physical things or objective services due to the marginal increment of resources in any given use or place which accrues in the first instance, i.e., prior to sale—to the person responsible for investing resources there [EW 134].

Pigou thought that only when marginal private and marginal social net product were identical would the free action of the price system result in the maximization of the national dividend and, hence, the maximization of social welfare.

Sidgwick saw variations in public and private *utilities* which are quite similar to Pigou's concept of "net product." Some examples of Sidgwick's variations in welfare due to variations in net product or utility are (1) in the case of land:

> the theoretical question is simply whether the whole amount of utility obtainable when the land is allotted to the exclusive use of individuals is clearly greater or less than the whole amount of utility that may be expected to result from leaving it common.[8]

And (2) in the case of railroads:

> where private enterprise may be socially uneconomical because the undertaker is able to appropriate not less but more than the whole net gain to the community of his enterprise; for he may be able to appropriate the main part of the gain of a change causing both gain and loss, while the concomitant loss falls entirely on others.[9]

And (3) in the case of natural resources:

> where it is the duty of the Government as representing the community to prevent the bounties of nature from being wasted by the unrestricted use for private interest.[10]

The divergence between private and social benefits is clearly expressed by Sidgwick in all these circumstances. However, marginal considerations were not part of Sidgwick's analysis. The search for a social optimum based on changes in total utility—either greater or less utility due to social or private ownership or control of a resource—was his main concern.[11]

Furthermore, Pigou specified external effects in production as

8. H. Sidgwick, *The Elements of Politics*, 2d ed. (London, 1897), p. 76.

9. *Principles*, p. 408; Pigou (EW 188–90) referred to this specific line of reasoning as a "somewhat specious fallacy." "Marginal social net product is not different from marginal private net product in this case for whatever loss the old producers suffer through a reduction in the price of their products is balanced by the gain which the reduction confers upon the purchases of these products." Sidgwick was concerned with the over-investment of resources in capital intensive increasing returns industries, as an indication of the loss of total utility to the community; Pigou's balancing on the margin does not account for this.

10. *Elements*, p. 147.

11. It should be noted it is precisely this point—that "total conditions of the Optimum are more important than the Marginal Conditions"—which is the main criticism against Pigou's analysis; see E. J. Mishan, "A Survey of Welfare Economics 1939–59," *Economic Journal* 70 (June 1960): 197–266.

examples of a positive element in "reckoning up the social net product":

> Again an increase in the quantity of resources employed by one firm in an industry may give rise to external economies in the industry as a whole and so lessen the real costs involved in the production by other firms of a given output [EW 134].

He also specified external effects in consumption:

> For some purposes it is desirable to count in also indirect effects induced in people's tastes and in the capacity to derive satisfaction from their purchases and possessions [EW 135].

But the continuation of the discussion is most important; Pigou concluded with this:

> Our principle objective, however, is the national dividend and changes in it. . . . Therefore, psychical consequences are excluded, and the marginal social net product of any given volume of resources is taken, except when special notice to the contrary is given to consist of physical elements and objective services also [EW 135].

It is apparent that Pigou was attempting to refine Marshall's consumers' and producers' surplus analysis and to incorporate it into the concept of total welfare maximization by suggesting the balancing of advantages and disadvantages of different producers.[12] But Pigou limits his discussion to "physical elements and objective services," which suggests his stress on production externalities rather than consumption externalities.[13]

Sidgwick's work on the other hand, was more involved with consumption externalities. Although his measurement of welfare changes

12. Pigou varies from Marshall here mainly in method. He uses the marginal apparatus to deal with small changes in economic welfare, while Marshall uses surplus analysis to analyze larger units of economic welfare.

13. Pigou underplayed consumption external effects because they were less determinate, less able to give analysis that would "bear fruit," not just "shed light," than externalities in production; but even so, his analysis "cannot be made rigorous" and "is frankly normative and geared to practical application." See M. Blaug, *Economic Theory in Retrospect* (Homewood, Ill., 1968). Hutchison in his *A Review* (p. 233) remarks that by 1939 "the bottom seems to have fallen out of the 'fruit' market." Pigou, "Presidential Address (Reminiscences of Changes in the Economics Profession)," *Economic Journal* 49 (June 1939): 220–221, wrote, "the hope that an advance in economic knowledge will appreciably affect actual happenings, I fear, is a slender one. It is not likely that there will be a market for our produce. Nonetheless, by sort of reflex activity, we cultivate our garden. For we also follow, not thought, but an impulse to inquire—which, futile though it may prove, it is at least not ignoble."

was the same as Pigou's he stressed changes in consumer satisfaction as a means to alter social well-being (*Elements*, p. 12). This can be observed in two fundamental ways to promote happiness through law (they both are expressed in terms of individual happiness): (1) the government may aim at making each of the individuals to whom its commands are addressed promote his own happiness better than he would without interference, and (2) the government may make each individual's conduct more conducive to the happiness of others (ibid.). The first class of laws, were admittedly "paternal," and Sidgwick accepted their justification with some reservation. The second class of laws, however, led him to the consideration of externalities—specifically in consumption.

Therefore, through an analysis of the reasons for general divergences from a welfare optimum, both Pigou and Sidgwick are led to examine cases of external effects. Pigou followed Marshall's direction and concentrated on production externalities, with the object of pursuing tax-bounty analysis (as we shall see in a later section). Sidgwick concentrated on external effects in consumption. However, the fundamental thoughts on general divergences from a welfare maximum are essentially the same.

IV. *Divergences*

Pigou analyzed three principal groups of specific "divergences" where marginal social net product did not equal marginal private net product. The divergence in each group arose out of the fact that under pure competition "in some occupations, a part of the product of a unit of resources consists of something, which, instead of being sold by the investor, is transferred, without gain or loss to him, for the benefit or damage of other people" (EW 175). The three cases were tenancy and ownership, neighborhood effects, and increasing returns industries. In contrasting these cases with Sidgwick's thoughts on the same topics, Pigou's reliance on Sidgwick's ideas is clearly demonstrated.

1. *Tenancy and ownership*

The first type of divergence which Pigou discusses arises in connection with those wasteful forms of tenancy of land or of other durable instruments of production, the repairs and improvements of which the tenant may have undertaken during his tenure. Pigou notes that the tenant will provide as little as possible in terms of maintenance or improvements (EW 175). Similar waste occurs when private companies are permitted to supply a town with gas or electricity or water on the condition that the plants of these companies pass into the hands of the municipality after a certain time without compensation (EW 176). The excessive rate of use of the resources involved results from the loose forms of tenancy which fail to impose "economic rent."

The main trouble here is the failure to introduce the competitive pricing process in these parts of the economic system. What is needed is not a correction of the private product to yield true social product, but actually a more accurate calculation of the private product from the standpoint of the resource owners.[14] Pigou seemed to recognize this as he noted that the solution lay in the provision of "legal security of tenure coupled with the legal prohibition of renting tenant's improvements" (EW 181). This would, therefore, specify the receiver of the economic rewards accruing to the improvements.

Sidgwick also realized the problems which occurred due to ill-defined property rights and the failure to define the recipient of economic rent.[15] He examined the case of ownership and tenancy in detail in his chapter on Rent (*Principles*, pp. 293–96). The similarity of Pigou's treatment of this problem with that of Sidgwick is striking; Pigou seems to have added little but historical examples of Sidgwick's original ideas. Sidgwick thought that the

> possibility of improvement and deterioration rendered it a matter of some difficulty to frame a rent-contract which shall give the farmer adequate inducement to treat the land in a manner most economical on the whole [p. 294].

His solution, similar to Pigou's, recognized the question of dubious property rights, but he added:

> each improvement [should] be made the subject of special agreement between the farmer and landlord—which practically requires the latter, or his agent, to take a certain share in the management of the farm [pp. 294–95].

It is especially noteworthy that Sidgwick had included in his analysis an important concept which Pigou had overlooked—a "mutual contracting" solution between the parties involved.[16] Sidgwick relied on this solution frequently throughout his work.

14. F. H. Knight, "Some Fallacies in the Interpretation of Social Cost," *Quarterly Journal of Economics* 38 (Aug. 1924): 582–606.

15. Sidgwick's views on the lighthouse as an example of a spillover benefit are well documented. However, he also examined the fisheries question and the problems involved with reforestation (see: *Principles*, p. 406).

16. Coase took the Pigovian tradition to task over Pigou's narrow and inapplicable solutions to internalizing externalities in R. Coase, "The Problem of Social Cost," *Journal of Law and Economics* 3 (Oct. 1960): 1–44. Coase's main argument is precisely for mutual recontracting solutions.

2. *Neighborhood effects—the problem*

The second type of divergence which Pigou examined was one in which the production of a commodity gives rise to incidental uncharged services or uncompensated disservices to a third party who is neither its producer nor consumer but who merely happens to be near the site of production. Pigou noted several cases which illustrate this point. The first is the lighthouse whose benefits are "enjoyed by ships on which no toll could be conveniently levied." He used two other "Sidgwick cases" —afforestation and scientific research—to show external effects for which free exchange does not provide adequate remuneration.[17] Pigou regarded the services of the lighthouse or research worker as a "new commodity" for which latent consumers' demand exists and which can, therefore, generate a great deal of consumers' surplus. However, it is not produced, because the producers' surplus is negative or zero. Consequently, a genuine divergence between marginal social net product and marginal private net product exists.

Pigou added a list of social economies and diseconomies which result from urbanization and industrialization: (1) private parks which, even though public admittance is prohibited, improve the air of the neighborhood, (2) roads and tramways, which increase the value of adjoining land, (3) lamps erected at the doors of private houses which necessarily throw light on the streets, and (4) smoke from factory chimneys which injures buildings and vegetables, dirties clothes and rooms, and makes artificial light a necessity.[18] In all these cases, as in the case of the lighthouse, there are obvious divergences between private and social product.

Although the main thrust of his analysis concerned changes in production to alleviate divergences between marginal social net product and marginal private net product, Pigou did mention several cases of consumption externalities which lead to divergence also. First, he saw the external effects in the offense to public taste by the production and sale of intoxicants. He also noted the injurious effects on the health of children and women caused by allowing women to work in factories, "particularly during the periods immediately preceding and succeeding confinement" (SAWE 187). He viewed this latter example as "the crowning illustration of this order of excess of private over social net product" (ibid.).

17. In relation to scientific research, Pigou (EW 185) noted (as Sidgwick, *Principles*, p. 443, did before him) that "patent laws aim, in effect, at bringing marginal private net product and marginal social net product more closely together."

18. It is interesting that Pigou's "disservice connected with the running of motor cars" was that they wear out the surface of the roads; see SAWE 186.

Sidgwick's discussion of external effects can be compared with Pigou's on two points—one major point which Pigou made, the lighthouse case, and the second, which Pigou considered a minor point, the sale of intoxicants and the health of working women and children. In relation to the lighthouse case, there is hardly anything more to be said than that Pigou repeated an example of externalities in production that Sidgwick had taken from Mill.[19] In relation to the paternalistic cases, Sidgwick, in keeping with his desire to search deeply into cases of external effects related to individuals, examined these in detail.

The question of the welfare of women and children was in keeping with the basic duties of government—to provide protection from force and fraud. Sidgwick remarked that the protection of children from mischief caused actively or through the neglect of their parents was an inherent duty of any government. To him the question of individual rights versus social rights was not legitimate here. He extended this analysis to include women during child-bearing and child-rearing years "as an indirect protection to the physical well being of children" (*Elements*, p. 140). For Sidgwick, then, this case was not under consideration as a possible instance for government interference, but fell within the essential *duties* of any established government.[20]

The same reasoning which applied to the restriction on the sale of intoxicants was applicable to the passing of legislation requiring sanitary housing conditions, Sidgwick thought. Since his analysis of housing conditions was more "economic" and free from "moral" implications, it will be used as the relevant example in this discussion. It should be noticed once again that in Sidgwick's analysis there is no concept of marginal conditions; the total welfare of society was his main concern, as he wrote:

> When a man is forced to cooperate with his fellow citizens in a common system of drainage and water supply, when he is prevented from using a house unfit for habitation, or from overcrowding any part of a house, it may be said that concern is applied to him in his own interest; and no doubt it is designed that he should derive benefit from the coercion; still its main justifica-

19. J. S. Mill, *Principles of Political Economy*, W. Ashley, ed. (New York, 1964), p. 975.

20. Sidgwick included among the basic *rights* of the individual, the right to smoke-free air and minimally congested neighborhoods: "The owner of a house is not merely protected against forcible entry of a stranger, but for the loss of utility caused by the pollution of the surrounding atmosphere." It is important to note that in *The Elements of Political Economy*, p. 69, Sidgwick does *not* suggest a mutual-contracting solution.

> tion lies in the need of protecting his children and neighbors who might suffer if his house became a focus of disease [*Elements*, p. 133].

The welfare of all would decline if the individual were free to comply with health measures or not as he wished, but the individual's welfare would also suffer if he did not cooperate. Therefore, partially, on the basis of the greatest good for the individual, Sidgwick justified legislation for the benefit of society; but more importantly, he justified it on the basis of the total welfare of the community.

3. *Neighborhood effects—the solution*

The variation found in Sidgwick's and Pigou's approaches to solving the divergence between social net product and private net product is consistent with the analysis presented by each. First, Sidgwick sought a total welfare solution in the light of undetermined property rights; his cases were generally external economies and diseconomies in consumption, and his solution was given in this prescription:

> how far such protection of A from indirect interference should be given, where it involves a material restriction on the freedom of action of other persons, can only be settled in any particular case by a careful balance of conflicting inconveniences [*Elements*, p. 69].

And regarding many questions of social versus private welfare, he remarked that "in any concrete case, the balance of utilities may be difficult to ascertain" (p. 66), and that the best way to solve each specific case is through "the aid of special experience on a balance of conflicting considerations" (pp. 75–76).

Pigou's solution to external effects was as determinate as Sidgwick's was indeterminate. He saw the mitigation of divergences between marginal and social net product and marginal private net product as infeasible on a person-to-person basis. True to his extension of Marshallian analysis, he believed that the state (if it so chooses) could remove the divergence in any field by "extraordinary restraints":

> a tax should be placed upon the production of goods where the private net product of any unit of investment is unduly large relative to the social net product, for example, alcoholic drinks, petrol duty, and motor-car license tax, [and] if the private net product of any unit of investment is unduly small in an industry, a

bounty should be provided by government, such as town planning and police administration [EW 193].[21]

The welfare effect of taxes on the consumption of products where the private net product was greater than the social net product was not overlooked by Sidgwick:

> taxes that reduce the consumption of commodities liable to be abused, such as alcoholic stimulants, tend to benefit consumers thus prevented from injuring themselves, and indirectly increase production by diminishing the loss of efficiency caused by such production [*Principles*, p. 578].

Sidgwick noted that the tax on the sale of opium and tobacco was an attempt to lower the quantity of the good demanded, for the welfare of society. He also noted that bounties could be an incentive for the provision of goods when the private net product was lower than the social net product as

> for the sake of some general utility which the competitive system cannot be trusted to provide; . . . if the price [that the government charges] be reduced below a certain point, a special bounty is conferred on the purchases at the expense of the rest of the community [*Principles*, pp. 554-55].

But even though it is clear that Sidgwick knew of the tax-bounty solution for internalizing external effects, he did not suggest it as a major policy measure to correct the problems of the free market to the extent that Pigou did. Sidgwick's main concentration was a balancing of rights—to maximize social justice as well as social welfare. He realized the existence of many techniques, but maintained that there remained no perfect solution to fit all the problems which were considered.

4. *Divergences from optimal social output due to industrial organization*

The third type of case which Pigou discussed concerned less than optimal output due to the industry's structure. The first case he dis-

21. The tax-bounty solution is the main aspect of the Pigovian tradition. W. J. Baumol, *Welfare Economics and the Theory of the State* (New York, 1952) suggests that, at best, the solution narrowly assumes that a few taxes and bounties will correct all the divergences of a free market system and therefore achieve some social welfare ideal. Much recent literature has been devoted to prove that Pigou's solution doesn't work. See: U. Hla Myint, *Theories of Welfare Economics* (Cambridge, Mass., 1948); J. Buchanan and W. Stubblebine, "Externality," *Economica*, n.s. 29 (Nov. 1962): 371–84; and W. J. Baumol, "On Taxation and Control of Externalities," *American Economic Review* 34 (June 1962): 127–51.

cussed under this heading involved the instance where the marginal social net product of the resources employed in an industry with "Decreasing Supply Price" is greater than their marginal private product. This is similar to Marshall's suggestion that subsidies should be given to increasing-returns industries.[22] Pigou took into consideration the opposite effect which occurs in industries of increasing cost and presented the general solution of "State bounties to industries in which condition of Decreasing Supply Price *simpliciter* are operating and State taxes upon industries in which conditions of Increasing Supply Price from the standpoint of the community are operating" (SAWE 224).

The second case Pigou discussed involved the fact that increasing-returns industries tended toward monopoly. This particular case of divergence from optimal output was well exemplified by the railway industry:[23]

> One of the notable instances of this is afforded by the industry of railway transportation along any assigned route. In view of the great cost of preparing a suitable way, it will, obviously, be much less expensive to have one or, at most, a few railways providing the whole of transport service between any two assigned points than to have this service undertaken by a great number of railways each performing an insignificant proportion of the whole service [SAWE 251].

In general, Pigou stated, "where the gain from unification exceeds the cost and trouble involved, unification will occur" (SAWE 264). The solution proposed was a government commission to regulate price.[24]

The final divergence between private and social net product was exemplified in the case of monopolistic competition—specifically, in relation to advertising outlays. Pigou noted that advertising expenditures of competitive firms not only involve considerable expense but frequently neutralize one another or, at best, lead to substitution between similar goods. Since investment in advertising is likely to yield a social net product less than the private net product, he suggested either no-advertisement agreements (like barristers and doctors) or tax-

22. For a detailed explanation of the problems involved with Pigou's analysis, see U. Hla Myint, *Theories of Welfare Economics*.

23. He noted that the same holds true for water, gas, electricity, or tramway service.

24. The problem of establishing price in these industries was examined by Pigou in his analysis of discriminating monopoly pricing. His main point was that "while no uniform price can be found which will cover the expense of producing any quantity of output, a system of discriminating prices is practical that will make some output profitable" (see SAWE 308).

ation and prohibition of certain types of advertising by the state. Once again, Pigou sought to optimize output by taxing away negative external effects.

Sidgwick discussed the detrimental effects of a monopoly market structure—"the important class of cases in which the individuals have an adequate motive for rendering *some* service to society, but not for rendering as much service as it is in their power to render" (*Principles*, p. 149). But he recognized that these monopolistic cases occur because "a decided economic gain [is] to be obtained by that organization of a whole department of production under a single management . . . from the saving of labor and capital it renders possible" (ibid.). In the case of decreasing-cost industries, such as the provision of water and electricity to towns, a "practical monopoly (is) manifestly the most economic arrangement" (*Principles*, p. 445).[25] Sidgwick's solution was to allow government intervention, either ownership or control. Although he did not recognize pricing problems which differed because of differing elasticities of demand, he did not extend the analysis into the area of public utilities (*Principles*, pp. 343-47).

Sidgwick was concerned with the "waste incident to the individualistic organization of industry"—specifically, advertising costs in monopolistically competitive industries. He noted the case where there exist many producers who have difficulty in finding customers and who rely on "forming and maintaining the habits" of customers they get. The expenditure incurred for the sole purpose of "finding purchasers" is a social waste and "a large part of the cost of advertisements, of agents and 'travellers,' of attractive shop-fronts, etc., comes under this head" (*Principles*, p. 47). He did not suggest government action here, however, but merely remarked upon the deficiency of the system.

Therefore, in relation to the divergences between private net product and social net product, Pigou's and Sidgwick's analyses are in more respects similar than dissimilar. On tenancy and ownership, the analysis keyed around the recognition of the fact that property rights are inadequately defined. The divergence which results due to externalities is sufficiently covered by Sidgwick as well as Pigou. It should be noted that Pigou's attempt to use Marshallian market analysis to discuss total welfare led to some basic problems of transition. Finally, in relation to problems involving industry market structure, Pigou relies heavily on Marshall's ideas and terminology for decreasing-cost

25. This also applies to public utilities construction and the maintenance of roads, bridges, canals, railways, harbors, and lighthouses.

industries, but Sidgwick has written enough to indicate his thorough understanding of the problem also. Consequently, an analysis of these divergences has shown that although Marshall's influence on the direction of Pigou's thought is obvious, Sidgwick's ideas undoubtedly formed a good part of his basic analysis.

V. *Pigou's Ideas on the Limits to Government Intervention*

The analysis of Pigou's relation to Sidgwick's work has shown that he leaned heavily on the ideas of the new concept of government action which Sidgwick had so thoroughly analyzed. His analysis was constructed to help an economy structured on capitalistic ideas to better promote social well-being. Large measures of government intervention were not part of his system. Pigou, like Mill and Sidgwick, suggested tinkering with the laissez-faire system to achieve the desired social output.

Pigou was wary of government intervention and government operation of industry, and he freely admitted that "under any form of State control over private monopoly . . . a considerable gap between the ideal and the actual is likely to remain" (SAWE 379). Consequently, Pigou sought the solution to the problem of "natural monopolies" in regulatory agencies. His description of the industries which could best be run by government has a very Marshallian ring: "those industries [which] have been reduced more or less to routine and in which there is comparatively little scope for daring adventure" (SAWE 405). Throughout most of his work Pigou used Marshall's thoughts to yield determinate answers to policy questions. He would propose some specific solution and present it as a rule for real decision making.

However, a later work of Pigou's gives the reader a somewhat different impression. In 1939 he reexamined the conflicting concepts of state action and laissez-faire. He reiterated the major point he had made in defense of state action in the *Economics of Welfare* and presented specific cases to demonstrate these. But a notable change is evident in the conclusion to his article. Pigou's works suggest an *attitude* change—away from the exactness of a follower of Marshall towards a philosophy with a definite Sidgwick-type reasoning:

> The moral is plain. The issue about which popular writers argue—the principle of laissez-faire versus the principle of state action—is not an issue at all. There is no principle involved on either side. Each particular case must be considered on its own merits in all details of its concrete circumstances. . . . Accumula-

tion of evidence, the balancing of probabilities, judgment of men, by these alone practical problems in this region can be successfully attacked [SAL 217-18].

Therefore, Pigou's return to Sidgwick's school of thought was now not only implied but also admitted. He admitted that to maintain that within a competitive system market failure is unimportant is as foolish as claiming that government action can solve all problems. Pigou's final selection of "the balancing of conflicting circumstances" approach completes his confirmation as a disciple of Sidgwick's philosophy.

VI. *Concluding Remarks*

Pigou's contribution to welfare economics is undeniable. As Marshall's successor he had a tailor-made audience. The ideas he supported became part of the mainstream of economic thought.

Pigou began his investigation of welfare with Marshallian analytical concepts, but returned to Sidgwick not only for a philosophical foundation but also for practical applications of and solutions to welfare problems. Furthermore, it must be noted that the main point upon which Pigou's analysis was subsequently criticized was not the philosophical thought of Sidgwick, but rather, Pigou's unsuccessful attempt to impose Marshallian ideas on top of them.

Although Sidgwick's work has not been recognized as pivotal in welfare theory, the comparison between Pigou and Sidgwick clearly demonstrates the fact that it does contain the components essential to the theoretic welfare base. Like Sidgwick, Pigou clarified welfare in terms of "utility"; he set out criteria for increasing welfare in terms of Sidgwick's two propositions; and he analyzed the divergences from optimum output with ideas that can be found scattered throughout Sidgwick's writings.

There is no doubt that Pigou gave welfare economics a name and defined categories for organization and discussion, but there should also be little doubt that many of the basic ideas that Pigou used were not original with him, but were the work of Sidgwick. Pigou reinstated Sidgwick's ideas into the prevailing current of economic thought; however, their penultimate source should be appreciated.