ARTHUR CECIL PIGOU, 1877—1959

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I. *Pigou and Economics*

Arthur Cecil Pigou was a great master in the orthodoxy of British economics, succeeding Alfred Marshall at Cambridge. Pigou not only followed the doctrine of his master faithfully and rigidly, he also carried the precept of his master on academic attitude to the extreme. In 1924 in his lecture in memorial of Marshall he expressed clearly the essence of Marshall's academic attitude, although filled with bitter grief:

> So economics for him was a handmaid to ethics, not an end in itself, but a means to a further end: an instrument, by the perfecting of which it might be possible to better the conditions of human life. Things, organisation, technique were incidents: what mattered was the quality of man.... But there is another side. Though, as he held, the end and the warrant of economic study is to help forward social improvement, eagerness for that end must not lead us to scamp the necessary means, or to advance to the attack without an adequate preparation.... So, though, for the economist, the goal of social betterment must be held ever in sight, his own special task is not to stand in the forefront of attack, but patiently behind the lines to prepare the armament of knowledge [19, pp. 82–84].

In these respects one cannot find any difference between Marshall and Pigou. Pigou was thoroughly devoted to scientific studies with an ardent desire to improve human society and at the same time he had the noble heart of a monk. No one could embody in himself more completely, in Marshall's words, " a cool head and a warm heart " than Pigou.

He was so far above the world that he was regarded as being inaccessible. Legends had grown up around his indifference about his personal appearance. He was unmarried. All the leisure he could spare from his studies was devoted to mountain climbing. After all, even this was nothing but a pleasure for his soul which sought to keep aloof from earthly things. In fact, the subject of economics is the human being engaged in the ordinary business of life, the world of man and woman. It is not " the commercial doings of a community of angels." Ordinary human motives are not so elegant; they " are sometimes mean and dismal and ignoble." He said, " one who desired knowledge of man apart from the fruits of knowledge would seek it in the history of religious enthusiasm, of martyrdom, or love; he would not seek it in the market-place " [14, p. 4]. As his earlier career shows, he had an interest in poetry, ethics and philosophy.

In 1908, in his inaugural lecture *Economic Science in Relation to Practice,* he talked about the aim, value, significance and motive for studying economics. When a man seeks knowledge, the object of his search may be either light or fruit; either knowledge for its own sake or knowledge for the sake of the good things which it brings. Economics must be, first of all, a " fruit-bearing " science. Indeed economics as such is not a normative science but a positive science. But it must be orientated in the universe of knowledge and behavior by the ethics of the good.

Furthermore, economics is an experimental or empirical science which is concerned with the world known in experience; it is not a pure science whose function is to discover implications of premises. Although in our field there exists a type of pure economics, its study would be, for us, merely an amusing toy if our objective is the application of knowledge. While economics must be a realistic, not a pure, type of science, a mere accumulation of observed facts will not serve us. We must generalize from a number of observed facts rules which are applicable to particular problems.

The contents of this lecture reappeared without great alteration in the first chapter of *The Economics of Welfare*. To say that economics is a " fruit-bearing " science, not a " light-bearing " science, is not only adequate to define the system of welfare economics which he made his life's work, but also it would certainly continue to twinkle forever as a guiding star, pointing the directions in which economics might go, if it should happen, by inertia, to lapse into unconsciousness about its purpose and to be lost in a maze of specialization.

Pigou was born on 18th November, 1877, at Ryde. His father, C. G. S. Pigou was a soldier. In 1896, after leaving Harrow, he went as a history scholar to King's College, Cambridge, where he was awarded a first class in the Historical Tripos in 1899 and in Part II of the Moral Sciences Tripos in 1900. He also won the Chancellor's Medal for English Verse, and the Cobden, Burney and Adam Smith Prizes. From 1902 until his death, he was a Fellow of King's College.

In 1908, the honored Chair of Political Economy long occupied by Alfred Marshall was turned over to Pigou, then aged thirty. For the next thirty-five years, until the Chair was succeeded to by Sir Dennis Robertson, Pigou held it. His lectures, being lucid and unpretentious, gained the confidence of students. On the other hand, it was observed, they were stereotyped. As can be seen from his writings, he actually coninued to expound invariably what he believed to be the truth of economics.

He died on 7th March, 1959, at the age of eighty-one. With the exception of his service on government committees for a while before and after World War I, he pursued his study of economics at Cambridge.

He published many books on economics throughout his life. However, the main book is a magnum opus, *The Economics of Welfare*, which is a revision of his *Wealth and Welfare* of 1912 with a change of title. We may think that the skelton of his economic theory was already constructed in *Wealth and Welfare* and that all subsequent works were its amplification. For example, *Industrial Fluctuations* and *A Study in Public Finance* are outcomes of growth of elements included in the first edition of *Wealth and Welfare*, and *The Political Economy of War* and *Socialism versus Capitalism* are systematic applications of his welfare economics. Moreover, other pure analytical works which seem at first sight to have hardly anything to do with welfare analysis, namely *The Theory of Unemployment*, *The Economics of Stationary States* and even *Employment and Equilibrium* which was really concerned with the new Keynesian theory, were nothing but his orthodox theory clarified according to circumstances by the projections of light from different angles.

At about the time when Pigou launched into economic studies, the British as well as Cambridge economics had long been dominated by Marshall. It was natural that Pigou should have constructed his own system of thought under the great influence of Marshall, namely along the orthodoxy of classical economics. But since the latter half of the thirties when Keynes challenged the sacred doctrine of classical economics, Pigou was to enlarge and defend the classical theory through his attempts of counter-revolution against the Keynesian revolution. These two great works of Pigou, i. e. the establishment of welfare economics and the expansion of classical economics, symbolized the vicissitudes of economics itself in the first half of the twentieth century over which Pigou's academic life stretched. If a survey of academic development in an age is made possible with resort to works of a single author, he would be entitled to the name of a great author indeed. Pigou really was one. In this short essay appraising Pigou's works, we shall confine ourselves to these two groups of problems.

II. *Establishment of Welfare Economics*

According to Rostow's stage theory of economic growth,[1] Great Britain took the lead among the capitalist countries in taking-off into an orbit of steady growth from the 1780's to the early 1880's and by gradually extending modern technology over the whole front of its economic activity, it had attained the stage of technological maturity by the mid-nineteenth century. Then there was a relatively long interval between the stage of maturity and the next stage of high mass-consumption which barely started in the 1930's. This relatively long gap in the British sequence compared with other countries would explain characteristic movements of the British social and political history in the second half of the nineteenth century. When a society has achieved both technological maturity and a certain level of real income and has begun to reflect the strain and evil attendant upon strenuous industrialization, according to Rostow, it has increasingly to reconsider the ends to which the mature economy might be put. Specifically it has to choose between three major objectives: first, the expansion of political and military power to the external world, second, the move towards the welfare state and third, the drive to high mass-consumption. Britain at the cross roads of economic growth chose the road to the welfare state. In this post-maturity stage from the mid-nineteenth century to at least World War I, Britain was devoted to works of gradual social reform on the basis of her solidly established material prosperity. It was in 1912, just on the eve of World War I that *Wealth and Welfare*, the prototype of Pigou's welfare economics was published.

So much for the social background of Pigou's welfare economics. But his work had its own important moment of inception. *Wealth and Welfare* opens with the following passage:

> Several years ago I began to study causes of unemployment. It soon became apparent, however, that these causes are so closely interwoven with the general body of economic activity that an isolated treatment of them is scarcely practicable. Hence the gradual growth and more extended scope of the present volume [10, p. vii].

It was the standpoint of his analysis of policy that individual problems should be treated, not piecemeal but in a systematic framework of analysis.

Generally speaking, the works of British social and economic writers in the mid-nineteenth

[1] W. W. Rostow, *The Stages of Economic Growth*, Cambridge, 1960.

century sought to examine the roles of the state in economic life and try to answer the social problems of the times, in the face of man ruined by the strain of endless industrialization. These works suggested finding limits to the orthodox principle of laissez-faire. Neo-classical economists like Jevons, Sidgwick and Marshall only made *ad hoc* remarks on economic policy without preparing a systematic framework of policy analysis. On the other hand, the political philosophy of utilitarianism, in which the concept of the greatest happiness for the greatest number was the unique aim of policy, had not sufficiently been elaborated on the level of concrete economic affairs. The welfare economics of Pigou succeeded in fixing the economic analysis of neo-classical economists in the systematic framework of national income concepts, still holding firmly to the utilitarian concept of well-being as the general aim of economic policy. We may call it a national income analysis constructed from the welfare point of view.

On the publication of *Wealth and Welfare* Edgeworth wrote with a concise style in his review:

> The author appears to have drawn inspiration from two very high authorities on wealth and welfare. The good which philanthropy and statesmanship should seek to realise is defined by him in accordance with Sidgwick's utilitarian philosophy; to investigate the means conductive to that end he employs the methods perfected by Dr. Marshall.[2]

Of importance here is not the mere fact that Pigou inherited the philosophical thought of utilitarianism and the analytical tools of neo-classical economics, but that he developed a national income theory as a solid basis on which the two traditional elements were kept alive. Of course, Pigou was affected not merely by Sidgwick's utilitarian philosophy. Ideas of the distinction between the effects of policy on production and distribution of national income and of the discrepancy between private and social products, both of which had basic importance in Pigou's analytical apparatus, were ones of Sidgwick.

So much for the immediate basis for the formation of Pigou's system. Now let us put his system in a longer and wider perspective. Classical economics which was concerned with progress of material wealth had been transformed into neo-classical economics, in which, by the introduction of marginal analysis, principles of economic behavior of individuals were explored and the mechanism of market equilibrium was elaborated. Among neo-classical economics we can distinguish between two schools of thought, British and Continental. On the one hand, British economists tended to put more emphasis on partial aspects than general aspects of market equilibrium. An explicit description of general equilibrium of markets was hardly attempted seriously by British economists. Consequently, in cases of policy recommendations, studies were mainly concerned with the practical cases where a free play of economic forces would bring about a divergence in specific parts of the economic system from the optimum conditions. On the other hand, the theory represented by Walras and Pareto on the Continent was devoted to more abstract studies in the formal and ideal conditions of optimum resource allocation for the economic system as a whole. In view of these two streams of neo-classical economics, Pigou's system might be a point of contact of the two. Thus, in his system a number of practical, specific cases divergent from optimum were dealt with against a background of the general framework of optimum.

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[2] *Economic Journal*, March 1913, p. 62.

This intermediate characteristic is its weakness as well as its strength. *Wealth and Welfare* and *The Economics of Welfare* include both purely analytical and applied parts. Arguments of various of topics of economic policy arising in Britain such as control of monopoly, purchasers' associations, conciliation and arbitration, hours of labor, public operation of industry, industrial peace, methods of industrial remuneration, employment exchanges, minimum wage rates, rationing, subsidies, redistribution of income, etc., are indeed of value in themselves, but are not necessarily consistent with theoretical analysis of national income and resource allocation. His book might be, to use Hutchison's word, a sort of "loose-leaf compendium."[8] In fact, retitling of *Wealth and Welfare* to *The Economics of Welfare*, changing parts and chapters with every new edition, and transferring and retransferring several portions from one book to other, would have been possible only because it consisted of loose-leaves.

However, one must admit that there does not exist a single principle by which every practical affair could be systematically solved. Although welfare economics is understood as a basic principle of economic policy, it would have inevitable limitation in its application. So the above would not deprive Pigou's work of comprehensiveness and usefulness by comparison with other policy analyses.

We called Pigou's welfare economics a national income analysis constructed from the welfare point of view. Its goal was "to make more easy practical measures to promote welfare——practical measures which statemen may build upon the work of the economist" [14, p. 10]. But welfare, consisting of general states of consciousness expressing satisfaction or dissatisfaction, has a very wide range and is not measurable. In order to find a more limited field where scientific methods work, he restricted the range of his inquiry to the part of welfare related directly or indirectly to the measuring rod of money and named it economic welfare. And "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" [14, p. 31]. In this ingenious way economic welfare and national income were regarded as coordinate. On this coordination the whole structure of welfare economics was built with three propositions about national income as central themes: first, increase in production of national income, second, equalization of distribution of national income and third, reduction of the variation of national income——each of these would increase economic welfare, other things being equal.

The technique which translated economic welfare into national income as its objective counterpart was a splendid afterglow of utilitarian economic thought disappearing before long. Although the Marshallian theory of producers' and consumers' surplus was an attempt to measure net happiness in economic activity, its validity was confined to partial and relative changes because of the difficulty of measuring total and absolute changes. While Pigou gave up trying to measure economic welfare itself, he regarded national income expressed in monetary terms as an objective and operational tool for measuring the effects of economic causes upon economic welfare, because marginal changes in economic welfare could be measured by the measuring rod of money. In consequence, Marshallian partial and surplus analysis was replaced by a general and marginal analysis, so that the utilitarian tradition was restored in general economic analysis on the basis of marginal utility theory. However, Pigou's

[8] T. W. Hutchison, *Review of Economic Doctrines 1870-1929*, London, 1953, p. 286.

attempt, which brought the utilitarian tradition to its climax, was destined soon to be followed by tendency of economic theory to remove such a taint in two important respects.

First, since Lionel Robbins' challenge to Pigou's welfare economics in the mid-thirties,[4] the coordination of economic welfare and national income has been seriously criticized. Such a coordination, in fact, rested on the implicit assumption of the possibility of interpersonal comparison of utility, by assuming an identical marginal utility of money for individuals. The attempts to expel ethical propositions from economic science resulted before long in the establishment of the so-called new welfare economics which had its origin in Pareto. This was consciously confined to the first proposition of Pigou, i. e. the efficiency of production, excluding his second proposition on income distribution from its proper role.

There is, however, a general agreement on the point that every proportion in welfare economics implies a value judgement and that without any proposition on income distribution one cannot perfectly define economic welfare in policy considerations. Indeed, the rigor of the new welfare economics contributed to some extent to clarifying the methodological foundation of welfare analysis, but it cannot veil the sterility in comparison with Pigou's welfare economics. Pigou's innate rather than commonsense wisdom led artlessly to a self-contained, grand system of welfare economics. His idea of the equality of human beings will continue to live as long as it is explicitly stated as a value judgement. The traditional economics of happiness was without doubt buried as a dogma, but will be revived constantly as a value judgement in welfare consideration.

Second, national income analysis established through Pigou's attempt to fix utilitarian tradition to economic analysis has since taken its own way. Thus, there has been an increasing tendency to regard national income as an index of economic fluctuations and growth with reference to changes in national income. Needless to say, this was the result of the Keynesian revolution. By using national income analysis in this way the frontiers of economics have been greatly extended. Nevertheless, economists by their irresistable nostalgia cannot help bringing to bear a concept of economic welfare, however it may be defined, in international or time series comparisons of national income. There are indeed awkward pitfalls in the exact measurement of economic welfare, but what will be left in economics if one abandons the concept of welfare? The close combination of national income with economic welfare survives, unconsciously perhaps in even the most insightful of economists, all sophisticated attempts to refute it.

After all, both in the field of welfare economics and of national income theory one has to return to the thought of Pigou, unless he is an extreme logical mysophobe.

Many valuable things can be found in every part of Pigou's grand building which has withstood the wind and snow of time. The condition of resource allocation to maximize national income, namely his first proposition, is called the law of equal marginal productivities. From the formal point of view this is nothing but the Paretian optimum condition. But Pigou's interest was devoted not only to the formal condition of resource allocation, but, more important according to his judgement, to the divergence between private and social marginal products which occurred so often in the economic world. This consideration provided government with a basis for intervention in the market mechanism through subsidies or taxes. The concept of divergence between private and social marginal products has certainly been

[4] L. Robbins, *An Essay on the Nature and Significance of Economic Science*, London, 1st ed., 1932, 2nd revised ed., 1935.

kept in the tool box of theory of economic policy. Moreover, his analysis of supply prices which was associated with this argument stimulated the formation of the theory of imperfect competition in Cambridge.

An important point in the argument of the second proposition on income distribution is his bringing forward the problem of possible disharmony between production and distribution; the problem is whether or not the required efficiency of production is consistent with the ideal of fair and equal distribution of income. He knew well that what was really important in welfare economics was not mere formulation of value criterion but the many-sided examination of possible consistency or inconsistency of these criteria by concrete discussion. In view of the later development of welfare economics, Pigou's thorough argument on this point has been unrivaled by anyone.

His argument was put in the form of asking how dynamic determinants of national income, namely capital accumulation, increase of labor and technical progress, tended to affect the absolute and relative distribution of income between capital and labor. This has been succeeded by recent development of theory of economic growth.

His analysis for the third proposition on stabilization of national income has, frankly speaking, little attraction for us. Later, this part of the argument dropped out of *The Economics of Welfare* to form a separate voluminous work, *Industrial Fluctuations.* In short, Pigou's welfare economics is a static or, at most, a comparative static analysis, so that it has clear limits in application to dynamic problems. It required the development of the Keynesian national income analysis to deal successfully with the very problem of the fluctuation and growth of an economy.

Industrial Fluctuations, a massive empirical study, was much affected by Aftalion with respect to theory; Pigou attached special importance to changes in psychological expectations as a cause of trade cycles. In a history of trade cycle analysis he would be remembered for his theory of psychological, as opposed to mechanical cumulative processes. His thought on trade cycles showed no change even in his later work, *Employment and Equilibrium.*

III. *Expansion of Classical Economics*

Since the publication of Keynes' *General Theory* in 1936, Pigou as an exponent of classical economics faced severe attack from the new economics. The second great imprint made by Pigou in the history of economic analysis, whether positive or negative, was a series of efforts to adapt the classical theory to the Keynesian theory.

A distinction between the classical and Keynesian theories is to be found in the fact that, while the former is concerned primarily with the mechanism of the optimum use of resources assuming a tendency towards full employment of resources, the latter is concerned explicitly with the mechanism which determines the extent of use of resources. In other words, while the classical theory seeks to determine value and distribution at given level of resources and output, the Keynesian theory attempts to determine the use of resources and output as a whole. The difference in their viewpoints naturally resulted in great differences in whole methods of analysis: the Keynesian theory of effective demand and national income versus the classical theory of value and prices. The establishment of the new system was achieved through the destruction of traditional doctrines with respect to employment, interest rate and money. Keynes' theoretical achievement has gained the name of the Keynesian revolution and the fruits of his thought have become the everyday thoughts of people all over the world.

In 1939, when the fervor of controversy between Pigou and the Keynesians had seemed to cool down slightly, Pigou told us of the changes that had taken place since the beginning of his academic life thirty or forty years before:

> Economists then had grown up in, and their whole experience was confined to, a world which, as regards politics and economics alike, was reasonably stable. There were, of course, local political disturbances. There were the ups and downs of the so-called trade cycle, fairly moderate in amplititude.... But the basic changes were gradual and slow-working. There were no catastrophes. How different is the experience of economists to-day! The 1914 War, with its aftermath of ruin; the period of unbalanced Budgets and astronomical inflations; the slow readjustment; the terrible relapse of the great depression and the political tensions that accompanied it! This fundamental difference of experience is, I think, largely accountable for the difference in the way in which the old generation of economists and the new approach their problems. Inevitably now the short run presents itself with far greater urgency relatively to the long run than it did then. The economists from, say, 1890 to 1910 did not, of course, ignore problems of transition or the great evils of fluctuating employment. But, relatively to the underlying forces by which production and distribution are governed, these things took second place. For the same reason, I think, the influence that monetary reactions exert upon what one may loosely call the real situation were subordinated.... For, to put the point over-sharply, the part played by money is dominant in the short run, but secondary for long-run problems. In a period when our minds are attuned to sudden and violent changes, a different viewpoint is natural.... If the difference in emphasis and outlook between post-1914 and pre-1914 economists is a natural, indeed an inevitable, consequence of their different environments, neither outlook can property be called more right than the other. The two are not competitive: they are complementary.[5]

The climax of shifting the viewpoint from long-run to short-run, from a real economy to a monetary economy was, of course, marked by Keynes. While Pigou himself took up problems of economic disturbance, he was unsuccessful in establishing an adequate method of analysis. In fact, *Wealth and Welfare*, the prototype of *The Economics of Welfare*, originated in a study of the causes of unemployment. *Unemployment*, *Industrial Fluctuations*, *Theory of Unemployment* and many books collecting his articles were actually all concerned with unemployment and economic fluctuations. But his method of analysis was not able to overcome the limitation of traditional theory.

Keynes' *General Theory*, as its title implies, is a study of the causes of unemployment based on a new fundamental economic principle. Before Keynes there was no explicit account of the mechanism determining the general level of employment, as distinct from the level of employment in individual firms or industries. Of course, classical theory had a doctrine of employment, according to which, in the labor market as in other markets, wages as the price of labor tended to be adjusted to a level where all labor would find employment. If there was unemployment, it was due to the fact that labor organized by trade unions or otherwise

[5] A. C. Pigou, "Looking Back from 1939", *Economic Journal*, June 1939.

refused to accept wages sufficiently low to secure full employment and acquired higher wages. In short, classical economists assumed a tendency towards full employment as a consequence of flexibility in wages and attributed unemployment to the rigidity of wage rates. Classical writers came to the same logical conclusion, namely, that a reduction of wages would solve the problem of unemployment.

Keynes denied this doctrine completely and on that occassion Pigou's *Theory of Unemployment* was severely criticized as the representative of the classical theory of employment. Keynes' criticism consisted of the claim that wages were a factor of demand as well as a factor of production costs. A reduction in wages would increase the volume of employment if total effective demand remained constant. It was, however, just a question whether effective demand remained constant or not.

In Keynes' method of analysis, employment depends on effective demand. Hence a reduction of money wages might increase employment by a roundabout process: i. e. by affecting the determinants of effective demand, namely, the propensity to consume, the marginal efficiency of capital and the rate of interest. It would be through the rate of interest that a reduction of money wages would be most likely to increase the volume of employment. At a given quantity of money, a reduction in money wages would increase the quantity of money measured in terms of the wage unit, and then the rate of interest would fall, which in turn might, through increasing investment demand and consequently total effective demand, lead to an increase in employment.

But we must note that Keynes actually did not assert a policy of reducing wages for increasing employment. Here we must quickly add two reservations. First, when either the liquidity preference function is infinitely elastic with respect to the rate of interest or the investment demand function is inelastic with respect to the rate of interest, a reduction in wages does not have favorable effect on employment. Second, even if there is no such an impasse and reducing wages has a favorable effect on employment, the same result can be achieved much more easily by the banking system increasing the quantity of money itself, and in practice a flexible wage policy is much inferior to a flexible money policy.

Immediately after the publication of the *General Theory*, people could not understand Keynes' new theory excepting a few of those around Keynes writing fine expository articles on the *General Theory*. Nor could Pigou, as he himself confessed later. His first critical essay[6] on the *General Theory* showed an excited passion which could hardly be restrained even with his self-control. It was directed at Keynes' cynical, defiant polemic and his misunderstanding of the classical theory, including Marshall. Apart from such a criticism of Keynes' mode of polemic, Pigou did not appear to have appropriate understanding of Keynes' positive theory. Nevertheless, Pigou, who would have left that there was something valuable in Keynes' theory, concluded his critical article with the following passage: "We have watched an artist firing arrows at the moon. Whatever be thought of his marksmanship, we can all admire his virtuosity."[7]

Later on when he was urged to confront the classical with the Keynesian theory of employment, Pigou tried to prove that a fall in wages might stimulate employment without a reduction in the rate of interest, but finally withdrew the view through controversy with Nicholas Kaldor. This short story in the period of transition is a short of intermezzo which

[6] *Economica*, May 1936.
[7] *Ibid*., p. 132.

reminds us of Pigou's personality. To understand his evaluation of, and his concession to Keynes, we must wait for his launching himself seriously into the study of the same problem as Keynes; the determination of the general level of employment in the short-run. World War II seemed to give the resident of the ivory tower sufficient time to do so. *Employment and Equilibrium* was the great result.

Consistently following the classical approach, this systematically equipped treatise indeed admitted the Keynesian case, but at the same time put the classical case in its proper place. It is far from the truth to say that Pigou conceded completely to Keynes and was converted to Keynesian theory. After Keynes' death Pigou wrote a small book, *Keynes's 'General Theory': A Retrospective View*, which attempted to reconstruct Keynes' theory but was surprisingly almost the same as the model of short-period flow equilibrium in *Employment and Equilibrium*. That Keynes' system reconstructed there was not Keynes' system itself but one interpreted and generalized by Pigou's hand would mean that Pigou swallowed up Keynes' system into his own system. His evaluation of Keynes, after all, was that though the *General Theory* had rendered a very great service to the armory of economics, it had not fundamentally revolutionized.

In *Employment and Equilibrium* Pigou introduced a concept of flow equilibrium and defined the subject matter of Keynes' *General Theory* with a positive rate of investment as a sort of short-period flow equilibrium. He constructed a model of short-period flow equilibrium which comprised four equations, namely: an equilibrium equation for saving and investment expenditure; an equilibrium equation for saving and investment production; a money income equation; and an equation either of constant rate of money wages or of constant level of employment. In this model, while the Keynesian case of under-employment equilibrium was attributed to assuming rigidity of money wages for the fourth equation, the classical view was held to be valid under the assumption of full employment for the equation.

With this system as a central framework, Pigou constructed four models which were distinguished from each other with respect to the market mechanism, namely, perfect competition, monopoly, relative share of labor income and so on. On the other hand, each model was studied separately under the assumption of a alternative banking policies, i.e. to allow the quantity of money to change as the rate of interest changes, or to keep money income constant, or the price level of consumption constant, or the rate of interest constant. This delicate analysis is really that of a great master. Especially his distinction between banking policies in formulating models is noteworthy from the viewpoint of policy analysis.

The new problem put forward provocatively by Keynes was fitted into the classical scheme as if nothing had happened. However, as a result of attributing unemployment to the rigidity in money wages, the sharp logic of the determination of income and employment by saving and investment which played an essential role in Keynes' theory was so to speak wrapped up in flosssilk. In fact, the saving function in Pigou's equilibrium equation for saving and investment expenditure still comprised the rate of interest as the variable. Consequently, his money income equation implied the quantity theory of money, in which the income velocity depended on the rate of interest, and the liquidity preference theory about speculative motive was entirely neglected. In short, at the bottom of the classical device of analysis and, among others, of the view which attributes unemployment to the rigidity of wages, there is an invariable belief that the economic system tends towards full employment as a consequence of the flexibility of wages.

Economists have been fond of a time-honored logical excercise to depict long-run equilibrium of a stationary state which, without technical progress, the economy would reach in the long run. Pigou in his article "The Classical Stationary State"[8] demonstrated the possibility of full employment in a stationary state——long-period flow equilibrium——introducing a new analytical tool which was later called the "Pigou effect." In the Keynesian theory, to balance saving with investment at the zero level might involve unemployment as a result of non-negativity of the rate of interest. As against this, however, Pigou maintained, incorporating the real value of the stock of money into the saving function as a crucial variable, that even if the rate of interest was inelastic downward at a minimum level, a wage reduction would lead to an increase in the real value of the stock of money through a fall in prices and would stimulate consumption (and discourage saving) and consequently employment. This new hypothesis showed a way of reasoning, quite distinct from the Keynesian, on how a fall in wages could affect employment; namely the effect of the wage reduction in affecting the rate of interest and investment. With this so-called wealth effect, Pigou's classical view was reinforced. That is not all. The value of wealth has since been integrated with other determinants of behavior in Keynesian theory.

An advocate of a new theory is often inclined to caricature an older theory. To an extent, Keynes did this to classical theory. Pigou, with a critical mind to "Keynesianism without tears" following Keynes' inclination, tried to appraise calmly the merits and limitations of Keynes' achievement. For Pigou, even the iconoclasm of Keynes was nothing but a stimulus tempting a man of unshaken orthodoxy into expanding further his own thought.

Pigou in his later years contributed little to the forefront of economics. At about this time economic discussions as a whole, having absorbed the impact of Keynes, began to turn to problems of long run economic growth. The problems and methods are very much those of classical theory. Pigou would have blessed this situation. To our regret, however, we could not observe after all the old general's going to this familiar battle front. He once wrote about the equilibrium concepts of Keynes and Marshall:

> In a moving world, therefore, Keynes's short-period equilibrium positions are not the positions which are at all likely ever actually to establish themselves. Thus they are on a par with the long-period equilibrium positions, always pursued but never attained, which dominate Marshall's *Principles*. It is wrong to suggest that Keynes is more realistic than Marshall, in that, while the latter deals only with tendencies, the former deals with facts. Both alike deal only with tendencies [38, p. 62].

Analysis of economic growth, however, would require the concept of dynamic equilibrium with a steady accumulation of capital, growth of labor force and introduction of technical progress, as distinct from the equilibrium concepts of Keynes and Marshall. We should say that Pigou's life of eighty-one years was still too short to wrestle with the construction of the third equilibrium system and to develop the classical theory all the more into the new field.

[8] *Economic Journal*, December 1943.

Writings of A.C. Pigou (Books and Pamphlets)

1. *Some Aspects of the Problem of Charity*, London, 1901.
2. *Robert Browning as a Religious Teacher*, London, 1901.
3. *The Riddle of the Tariff*, London, 1903.
4. *Principles and Methods of Industrial Peace*, London, 1905.
5. *Protective and Preferential Import Duties*, London, 1906, 2nd ed., 1935.
6. *The Problem of Theism and Other Essays*, London, 1908.
7. *Economic Science in Relation to Practice*, London, 1908.
8. *Economic Aspects of the Problem of the Feeble-Minded*, London, 1909.
9. *The Policy of Land Taxation*, London, 1909.
10. *Wealth and Welfare*, London, 1912.
11. *Unemployment*, London, 1913.
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