Pigou: an appreciation

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Compère. "I have great pleasure in announcing the 20th century awards in economics. For outstanding technical achievement …..Paul A Samuelson. For outstanding originality…..John Maynard Keynes. For outstanding exposition…..John R Hicks. And for outstanding life-time achievement…..Arthur Cecil Pigou! I call upon Professor David Collard to present the award." *Applause.*

Presenter. I am greatly honoured to be asked to make this presentation to Professor Pigou who is unfortunately unable to be with us today. I have to start with **welfare economics.** Welfare economics was Pigou's baby. He more or less gave birth to it, nourished it and fussed over it.. His book started as *Wealth and Welfare* (1912) and grew into the four editions of *The Economics of Welfare* (1920). Pigou was clearly fond of his great tome which he frequently revisited. The book was in general very well received. Even Young's well-known critical review of 1913 was positive. And in view of their rather different approaches it is worth recording part of Frank Knight's not uncritical but deferential review. "The book represents the science of economics at its best so far; no work in the field known to him is its equal in the combination of scholarship, analytical penetration and lucidity of exposition". Pigou's framework for economic policy which owed much to Marshall and to Sidgwick, exhibited his life-long passion for synthesis. As with all Pigou's books the architecture is important. I have discussed his work on welfare on various occasions and for now would just like to emphasise a few of its features.

- The famous tripartite structure of *Wealth and Welfare*, was built around the size, distribution and variability of the social dividend The variability criterion was, of course, later transferred to *The Theory of Industrial Fluctuations.*
- Pigou's book was not intended to be merely another "Principles" but a program for action for improving peoples' lives by means of economic policy.
- Pigou's welfare *criteria* were just that, criteria, not elements of a social welfare function which could be "traded-off" against one another. For example, transfers to the poor would increase economic welfare but *only if* the social dividend was not harmed.
- His most successful innovation was to stress what became known as externalities, suggesting "Pigovian" taxes and subsidies (to be contested later by the Chicago School).
- Following vaguer suggestions by Mill, Sidgwick and Marshall, Pigou pointed to inter-generational externalities and a "defective telescopic faculty". It was this concern that led him to encourage Ramsey to write his famous paper on saving (1928).
- The book is full of labour market analysis: so much so that Schumpeter regarded it as "the greatest venture into labour economics ever undertaken by a man who was primarily a theorist". The labour market was, of course, one of Pigou's main pre-occupations throughout his life.
- Pigou's slow retreat over output taxes and subsidies, illustrated that he could be rather stubborn, sometimes a useful characteristic

How has *The Economics of Welfare* stood the test of time? Not very well, it was beginning to seem half a century later.   Pigou's brand of welfare economics, based on utilitarianism and an active state, had largely given way to Paretian welfare economics. Efficiency had become a matter of confirming first-order conditions while distribution was left to one side since it involved “value judgements”. The old welfare economics was being ousted by the new. Technically Pigou’s welfare economics was coming to be seen as old hat. Further the presumption of market failure which permeated Pigou’s book, was being undermined by the “Coase critique”, coming from Chicago, the “public choice” critique, coming from Virginia and, before long, the “contestable markets” critique, Chicago again. While it is true that the detailed differences between Chicago and Pigou diminish once one has read the small print, as Steve Medema (2009) has correctly pointed out, there is a *presumption* in Pigou that welfare improvement cannot be left to the market. I would argue that the political climate (in a broad sense) has recently turned back in Pigou’s favour. So interventionism continues to be a feature of mainstream welfare economics. There is also the question of welfare measurement. Pigou’s own discussion of the social dividend as a welfare measure was hedged around with qualifications. But it is still widely used albeit with knobs on, for example the various “human development indicators”. And Pigou’s explicit emphasis on the *measurable* welfare of the poor, surely remains at the centre of any welfare economics.

So, one might ask, why not an award for Pigou’s welfare economics? Why not indeed. But there was a great deal more to come, nearly half a lifetime in fact. Pigou’s contributions fitted almost exactly into the first half of the twentieth century: an early paper appeared in the *Economic Journal* of 1902 and the last one in 1953. There is hardly an area of economic theory to which he did not contribute at a highest level. I have to admit, of course, that Pigou was not without his faults. He was prone to make technical slips, he was said to keep himself aloof from his younger colleagues in Cambridge, he gave the impression of being on the “wrong side” of history , as it were, in the evolution of both micro and macro economics, and his writing style could not be said to be highly readable. Having noted these faults, both real and apparent, I shall move on. I am, after all, presenting an award and award givers always accentuate the positive. Having established that Pigou was a major welfare economist and deserving of an award for that reason alone, let’s look at some of Pigou’s other “lifetime achievements”.

The Indirect Measurement of Demand. In his analysis of demand Pigou remained essentially a Marshallian. Although familiar with Pareto’s writings there is no evidence of their having significantly influenced his demand analysis. Neither, it has to be admitted, did demand play a major role in his main writings. Pigou did, it is true, discuss utility inter-dependence, in the manner of Veblen , a topic he briefly returned to in Pigou (1920) and, later, when commenting on Duesenberry, but it could hardly be claimed to have been an important Pigovian theme. Yet, if Pigou failed to advance demand *theory* he certainly pioneered the inter-dependence of theory and measurement. I need only cite his demonstration of the linear relationship between income and price elasticities, assuming independent utilities, known as Pigou’s Law (Pigou 1910), a piece of work which Deaton (1975) described as “still one of the best examples of indirect measurement by use of theory outside of the physical and biological sciences”. Two decades later Pigou (1930) assumed “quasi-constancy” of the marginal utility of money to estimate demand elasticities from Schultz’s data. These papers, taken as a whole, would at the least have earned him a footnote in the history of demand analysis even if he had written nothing else. They are the closest Pigou came to carrying out empirical analysis in any field of economics (apart from the empirical sections of *Industrial Fluctuations*).

The Quantity Theory of Money. Marshall, though not publishing *Money, Credit and Commerce* until 1923, had long been working on monetary theory. Thus there was an "oral tradition" that the demand-for-cash-balances version of Fisher's quantity theory of money was well-known in Cambridge and that Pigou simply made it explicit. When trying to establish precedent an oral tradition is always tiresome to outsiders and, I suspect, insiders sometimes claim too much. Pigou modestly claimed very little. In a non-controversial spirit he argued (1917) that the Fisherian and Cambridge approaches were essentially equivalent but that his demand-for-cash-balances equation was more useful than Fisher's purely mechanical formulation, as it emphasised behaviour. Pigou's version was rather subtle in that the demand for cash balances (as opposed to the demand for titles to legal tender) depended not merely upon the Cambridge *k* (which itself depended on expectations) but also upon the habits of banks and individuals. Pigou had been explicit in assuming that "the value of all commodities other than money in terms of one another is determined independently of the value of money" (Pigou, *op. cit.,* p.40) so his paper was absolutely in the tradition of what was to become known as the invalid dichotomy. Pigou's demand-for-money equation, which was intended as a demand equation, not just an equilibrium condition, was indeed a rectangular hyperbola, hence the homogeneity postulate and the unitary elasticity of demand for money. Much later Pigou, among others, was to become a natural target for Patinkin (1965) who, like many Keynesians at that time, was anxious to criticise the dichotomy between the real and monetary sectors of the economy. Pigou could not have been unaware of their inter-connection since he argued that the *income velocity* of money (a term which he introduced in *Industrial Fluctuations* 1927) depended upon the interest rate and the distribution of income.

The business cycle. Schumpeter, complaining that no one in the inter-war period had provided a definitive treatment of the business cycle, suggested that Pigou's synthesis in *Industrial Fluctuations* (1927) came closest. Though the work is not generally regarded as original, several features should be stressed. "The varying expectations of business men" are the immediate cause of fluctuations, driven by impulses that may be real, psychological or monetary. Hence Schumpeter's characterisation of the work as synthetic. There has been a recent revival of interest in psychological impulses (Pigou's errors of optimism and pessimism) and in their sectoral transmission: indeed it has become customary to talk of "Pigou cycles" (see Baudry and Portier, 2004).

Three other features of the book should be mentioned. The first is Pigou's refusal to accept what he called "this old doctrine of the economic harmonies", thus rejecting in advance, as it were, equilibrium business cycle theory. The second is his patient and sometimes innovative use of time-series data, for example, Pigou's was the first statement, as far as I know, of what was to become the Phillip's curve. The third feature, important in the light of future developments, is his discussion of policy to which the whole of Part II of the book is given over. Perhaps surprisingly, Pigou advocated an active monetary policy: its target would be stable prices with probably a downward secular trend. This could be achieved by an anticipatory discount policy to moderate price rises and falls, preferably utilising stock market data as early indicators. On fiscal policy Pigou favoured transferring the expenditures of central and local government from good times to bad. On unemployment insurance he returned to his earlier advocacy of compulsory but subsidised unemployment insurance since workers, left to themselves, would under insure. In view of the controversy shortly to come Pigou's discussion of wages is especially interesting. Though insisting that real wages should be "plastic" in both directions he recognised that with a severe depression of demand the degree of plasticity required would be too damaging in terms of social welfare.

Public Finance. One might have expected a book on taxation to have elaborated on Pigou's earlier scheme for externality taxes and subsidies. But this was not to be. The topic is touched upon only briefly in the *Study in Public Finance* (1928) on the rather dubious ground that it had been dealt with in *The Economics of Welfare.* The theoretical structure of the 1928 book is simple. Pigou distinguishes at the outset between exhaustive and distributional expenditures (later allowing for their inter-action of course). The composition of government expenditures should equate marginal valuations (satisfactions) in all uses. Its total amount should be set such that marginal valuation was a little more than marginal cost so as to allow for the costs of taxation, both administrative and what Pigou called announcement effects (disincentives). This assumption, that public expenditures should be subject to economic appraisal, provided the intellectual basis for cost-benefit analysis. So much for public expenditure. What of taxation? Taxes, Pigou argued, should be set so as to achieve least aggregate sacrifice (here Pigou is being thoroughly utilitarian) and should therefore be progressive rather than merely proportional. However, a sharply progressive income tax with large disincentive effects would fail to achieve least aggregate sacrifice if it adversely affected capital accumulation. An expenditure tax would minimise this adverse effect but the distributional implications of the implied savings exemption caused Pigou some anxiety. He later added a section on unemployment in which he was favourably disposed to anti-cyclical spending and, with reservations, to wage subsidies.

Pigou also gives an account of a simplified Ramsey system in which, on certain assumptions, commodity taxes would be inversely proportional to demand elasticities. Ramsey's recent paper (1927) had been both difficult and innovative and it was, of course, Pigou who had originally set Ramsey his problem. Theoretical developments in optimal tax theory later in the century owed much to the original Pigou-Ramsey formulation. Though critical of the Pigou-Ramsey result, Young observed that "Professor Pigou is consistently an explorer. His interest is always in the margins or frontiers where, by dint of painstaking analysis, new knowledge is to be had" (Young 1929 p.78).

Pigou's *Study in Public Finance* was not *merely* a textbook but was certainly a successful one: it went through three editions and was reprinted five times (most of us would be happy with that!). It also had an impressive intellectual architecture: government expenditure had to maximise value while taxation, given the revenue required, had to minimise disutility. And Pigou was not just drawing on old theory but absorbing new, technically difficult methods which he himself had done much to stimulate.

The Theory of Unemployment. Keynesians and non-Keynesians alike agree that Pigou had been beavering away at the problem of unemployment since at least 1912. That is why the variability of the national dividend had been an important component of welfare in *Wealth and Welfare* and why Part II of *Industrial Fluctuations* was entirely given over to "remedies". The remedies which concern us here, in the light of later controversies are wage flexibility, public expenditure, and short time working. At the risk of over-simplification Pigou argued: that "plastic" real wages would lower unemployment but, for social reasons, should not be pushed too far; that public expenditures might usefully be transferred from good times to bad; that short-time working was probably preferable to unemployment. Typically of Pigou these were "sensible" rather than "radical" suggestions.

Given Pigou's record, particularly *Industrial Fluctuations, The Theory of Unemployment* (1933) is a profoundly frustrating book. It became, of course, the butt of the appendix to chapter 19 of the *General Theory.* In Keynes's view Pigou's book was a book about employment which, though written in a depression, assumed full employment of labour. The structure of the book is not quite "neo-classical" (which Keynes called "classical") in that is it built around the demand curve for labour with the supply side, never entirely clear, being described in terms of the number of "would-be workers" and the plasticity of real wages. Having dealt with definitions in Part I, Part II is entirely taken up with guesstimates of the elasticity of the real demand for labour. The book has drawn praise from Solow (1980) who saw Pigou's concerns with the effects of monopoly, regional variations etc., as rather modern but nevertheless complained that his guesstimates were rather high. Parts III and IV are about the causes of shifts in the labour demand function, both monetary and non-monetary. These do not seem to me to add much to his discussions in *Industrial Fluctuations.* Part V, "The Causation of Unemployment and of Changes in Unemployment" is much more promising. I paraphrase it thus. Labour demand falls. This has no effect on employment in long run equilibrium, but does, of course, reduce the real wage of the still fully employed work-force. In the short run the extent of unemployment depends on wage "policy" (by which Pigou means the policy of organised labour). The less plastic labour is about its stipulated real wage the more unemployment . Plasticity is not the same thing as elasticity. It is about the rate of change of wages in response to a change in the labour demand schedule. Pigou seems to leave the policy-maker with very few attractive options: allow some reallocation of labour demand (though not a net increase) over time and persuade workers to be more "plastic".

To the Pigou scholar, it might be a puzzle why Keynes should have chosen *The Theory of Unemployment* rather than *Industrial Fluctuations* or even *The Economics of Welfare* when assessing Pigou on unemployment. But to the historian of economic thought it is clear why he had done so. Pigou's work was a convenient piece of clutter which was easily demolished. This left the way clear for the radical new approach based on effective demand. If unemployment was to be explained at all it had to be by the new method.

A digression. Pigou's other great tome of this period was *The Economics of Stationary States* (1935). Although Pigou claims that his book is an exercise in practical economics it is clearly not. After a good technical discussion of the nature of stationarity Pigou proceeds by way of many highly specialised models (generally these are explained in detail in the appendices). Unlike his other books this one is not divided into parts even though there is a natural divide at chapter twenty-five. Pigou simply takes us through his models: they are technical exercises and are not intended to be particularly interesting. The exercises can only be a foundation since “transition always rules; stationariness never; the long run never comes”. Nevertheless they are of interest as Pigou is looking at alternative capital structures in alternative stationary states, at determinacy in a world of monopolies, at technical change and factor rewards But after twenty four chapters Pigou is still in a one-commodity (though many factor) economy. And, as usual, though dealing with a many-commodity economy, he shows no inclination to follow the latest trends in demand analysis. The book is surely the least of Pigou’s tomes. It is very worthy and there is no reason why a distinguished Professor of Economics should not bother himself with a little arid theory. But does not earn him a place in the pantheon and was very soon to be overshadowed by Pigou’s response to Keynes’s *General Theory*

The General Theory. When I first started looking at Pigou’s work the general view was that he had offered a somewhat ungrateful review of the *General Theory,* which he had not properly understood, and subsequently capitulated with good grace in the Marshall Lectures (Pigou 1950). The opening comments of his review were certainly severe. “[Keynes] discovered then [in 1919], and his sub-conscious mind has not been able to forget since, that the best way to attention for ones own ideas is to present them as a matrix of sarcastic comment on other people…..Einstein actually did for Physics what

Mr Keynes believes himself to have done for economics" (Pigou 1936). Pigou writes so much better when he is being combative! "We have watched an artist firing arrows at the moon. Whatever may be thought of his marksmanship we can all admire his virtuosity". Setting style to one side, did Pigou's review contain points of substance? As he later admitted he *did* fail to grasp the essential role of "effective demand". But in pointing out the contradiction between the assumptions of fixed capital and positive net investment he fixed on a key problem of economic dynamics. What of the key Keynesian functions? The marginal efficiency of capital schedule was non-controversial and was driven, as Pigou had always insisted by "business expectations". The consumption function was, for Keynes, a function of income alone: Pigou insisted that it should be a function of both income and the rate of interest. As for the multiplier, Pigou insisted that its size would depend on the banking policy in place. More importantly for what was to follow, he re-iterated his position on real wages and employment again insisting on the central role of banking policy.

We now reach the topic on which I and several others in the room have written extensively, Pigou's famous, or notorious (take your pick) article *Real and Money Wage Rates in Relation to Unemployment* (1937). Pigou uses his device of the equilibrium firm where price equals expected marginal prime cost (which includes an interest element). If the real wage rate were to fall the firm would be in disequilibrium so output would have to expand. But the postulated fall is in the *money* wage so we have to make some assumption about banking policy. What are we to assume about the interest rate, the price level and the quantity of money? Pigou tries to fix things such that none of these changes. This is tricky with respect to the interest rate which may indeed be reduced temporarily. He insists, however, that this is an entirely separate matter and denies that a cut in money wages must operate "through" the rate of interest. "It is enough for my purpose to show that a money wage cut is not simply a piece of ritual that enables the real cause on employment expansion – a fall in the money rate of interest - to take effect". In response to Kaldor (1937), however, Pigou more or less capitulated. " A wage cut and a change in banking policy are thus alternative ways of inducing that change in the rate of interest which must occur if employment is to increase in any assigned measure". The interim reaction of Keynes and the younger Keynesians to Pigou's article, which I first described in a chapter in the *Pioneers* book (Collard 1981), now reminds me of those "hate" or "bullying" campaigns that are reported on social networking sites like Twitter. It was not a good atmosphere in which to carry through an academic debate. Ill and discredited, this would have been a good time for Pigou to have drawn a distinguished career to a close. But there was more to come.

A late flowering. *Employment and Equilibrium* was published in 1941. In reviewing it Kaldor referred to "the admiration which the reviewer feels towards the volume as a whole. Its well-planned logical construction, the subtlety of its analysis … are bound to place *EE* among the best things the author has written. The fact that it is the sixth major treatise on economic theory the author has produced bears witness to a record of achievement which must surely be unique among economists" (Kaldor 1941). If praise from Kaldor does not impress, I refer to Samuelson's judgement (1966, p.1183-90) that it was "one of the most important books of recent years" and, in terms of methodology "almost ideal". It is not an easy book to follow but embodied two of Pigou's main tenets: that any conclusion must rest on the assumptions made and that attention must always be paid to the banking system stipulated. Pigou, in a positive rather than a defensive response to Keynes, had moved into the world of the small macro-model. The important things are the signs of half a dozen total derivatives, the two of greatest interest being the Keynesian employment multiplier (Pigou's multiplier M_3) and the money wage "multiplier" (Pigou's multiplier M_1). Pigou calculates qualitative multipliers for three alternative models, the third embodying imperfect competition. Almost anything can happen but Pigou is content that M_3 is probably positive and that M_1 is probably negative. Both his results and Keynes's fall out as special cases! Even if Pigou was wrong it was a great example of the positive benefits of scientific controversy. One identifies with Pigou's comment (which I have used before) "Dennis has been spending years meticulously examining and criticising Mr Keynes on this and that, instead of getting on, as I think would be much better, with constructive work of his own" (Pigou to Keynes, July 1938). This was "constructive work" was it not?

Pigou was obviously quite taken by his small macro model and was soon to use it again in a much-cited paper on *The Classical Stationary State* (Pigou 1941). It was prompted by Hansen's warning of an approaching stationary state so included zero net investment as a possibility. The citings come, not because of stationarity, which no one is interested in, but because Pigou includes a real balance effect (the Pigou Effect) in his investment function. So, it was with all these things well under his belt that Pigou gave two lectures at Cambridge in 1949 on Keynes's *General Theory* (Pigou 1950). The tone of these lectures was much more conciliatory than his rather acerbic review had been. Nevertheless Pigou stuck to many of his main points: the lack of a dynamics, the inadequate treatment of expectations, the neglect of interest rates in respect of consumption and the multiplier and the role of money wages. But he made the major concession that he had underestimated the power of Keynes's new tool, effective demand

This brings me near the end of my catalogue of Pigou's achievements over his professional life. I have left his various "minor" books to one side. They include *The Riddle of the Tariff* (1903), *The Principles and Methods of Industrial Peace (1905), Economics in Practice* (1936), *Socialism versus Capitalism* (1937), *Income* (1945), *Lapses from Full Employment* (1945), *The Veil of Money* (1947), *Aspects of British Economic History* (1948), and *Income Revisited* (1953). I have not emphasised Pigou's academic relationships with his younger colleagues (Ramsey, Sraffa, Kahn, Joan Robinson and David Champernowne) which, in spite of his reputation for aloofness, were often positive. Nor have I considered his personality or personal life. It is true that Pigou led the quiet life of a bachelor academic but he did have an interesting hinterland: his climbing in Switzerland and the Lake District, his principled pacifism, his practical jokes, his personal friendships. I particularly like his attempt to interest Macmillan in one of children's stories he had written for his friends: after a discouraging reply he accepted that "there it must lie till discovered 100 years hence as a forgotten masterpiece". As far as I know it has not yet come to light.

I therefore present Arthur Cecil Pigou as eminently worthy of the award for outstanding lifetime achievement.

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