KYKLOS, Vol. 54 – 2001 – Fasc. 2/3, 193–206

The Strange Disappearance of Welfare Economics

Anthony B. Atkinson*

I. INTRODUCTION

The title of this talk may cause misunderstandings. When I gave a seminar with this title, a number of people commented to me that the word 'welfare' has certainly not disappeared from our vocabulary. Economics is full of welfare judgments. In the questionnaire study of the views of economists by Frey et al. (1984), over half the propositions involved value judgments; and the list would not be out of place today. I agree that welfare statements are alive and well. The point of my title is a different one: the disappearance from economics of discussion of the principles underlying normative statements. The study of welfare judgments, which is what I mean here by 'welfare economics' is no longer a mainstream subject and is not regarded as an essential part of the economics curriculum. The 'strangeness' is that, despite the prevalence of welfare statements in modern economics, we are no longer subjecting them to critical analysis. What is the relationship between such statements and the welfare of households which was the foundation for classical welfare economics? What is the justification for the criteria by which welfare costs are evaluated? How are macroeconomic targets and rules related to more fundamental objectives?

The disappearance of classical welfare economics could be explained by the fact that both economics and moral philosophy have moved on. Economics has moved on in its analysis of policy. Modern political economy, to which Bruno Frey has been an early and path-breaking contributor (as in his book with that title, Frey 1978), has emphasised the political context within which decisions about economic policy are taken. But I believe that political economy is complementary to, not a substitute for, the study of normative principles in eco-

* Nuffield College, Oxford, UK. E-mail: tony.atkinson@nuf.ox.ac.uk. This paper grows out of one given at a seminar at the Centre for the Philosophy of the Natural and Social Sciences, at the LSE. I am grateful to Roger Backhouse, Nancy Cartwright, Michael Spackman and David Vines for their most valuable comments on earlier versions, which have led me to develop further a number of points. None of them should be held responsible in any way for the views expressed.

nomics. Since welfare statements play a role in political debate, we need to comprehend their underlying structure and justification. The theory of justice has moved on from the utilitarianism that underlay classical welfare economics, which means that we need to consider new foundations for welfare judgments. But this renders more, not less, necessary the careful examination of the underlying principles. If one rejects utilitarianism, one has to ask whether it is on grounds of rejecting sum-ranking (i.e., that the criterion is the sum of individual utilities) or of a more basic rejection of welfarism (that decisions are evaluated according to the levels of individual utility). If one rejects welfarism, then we have to ask what is the replacement, and what are the implications for economic judgments?

In this paper, I consider the role of welfare economics, defined as the study of the foundation for welfare statements, illustrating the argument by reference to present-day macroeconomics.

II. THE POSITION OF WELFARE ECONOMICS

In the 1960s, welfare economics was an integral part of the discipline. Students were expected to study books such as Little (1957), Baumol (1965), or Graaff (1957). Microeconomic textbooks, such as *Welfare and Competition* by Scitovsky (1952), contained, as its title suggests, a substantial discussion of welfare economics. Its importance was clearly stated by Jan Graaff in the first chapter of his *Theoretical Welfare Economics*:

> 'Theoretical welfare economics proceeds from a number of definite assumptions . . . which are seldom stated explicitly. If their nature were more widely appreciated by professional economists, it is improbable that the conventional conclusions of welfare theory would continue to be stated with as little caution as is at present the custom' (1957, p. 1).

Welfare economics was seen as central, since much of economics was concerned with such matters as the efficiency and equity, and students needed to understand the basis on which such terms were defined and employed.

Since the 1960s, the position has changed and there has been a shift in emphasis in the profession away from studying the basis for welfare statements. In one of the leading microeconomics textbooks in the US, by Varian (1993), welfare economics is an optional chapter, which he himself does not cover when teaching. In his graduate text, Kreps says at the outset that

> 'we will touch on the efficiency of various institutions, although this will be relatively deemphasized' (1990, p. 7).

Economists do not devote a great deal of time to investigating the values on which their analyses are based. Welfare economics is not a subject which every present-day student of economics is expected to study. The general position of economists is well summarised by Solow who began his Tanner Lectures by saying

> 'A lecture – no, two lectures – on 'human values' by an economist; one might as well invite a turkey buzzard to lecture on table manners. How would the poor beast know where to start?' (1998, p. 3).

III. WELFARE STATEMENTS IN MACROECONOMICS

At the same time, economics is full of welfare statements, as is illustrated by the case study taken in this paper: modern macroeconomics. The first examples are taken from the policy field. The 1999 Jackson Hole Symposium, *New Challenges for Monetary Policy*, attended by many leading macroeconomists and central bankers, contained a paper by Mervyn King, Deputy Governor of the Bank of England, which discusses the optimal inflation rate (King 1999). There is a paper by Svensson (1999) on 'How Should Monetary Policy be Conducted?'. Or to give another example from current policy, in the United Kingdom, the Chancellor of the Exchequer has been persuaded that there is a 'golden rule' that public borrowing should not exceed public net investment over the cycle (HM Treasury 1997). A third example is provided by the European Union Summit at Lisbon in March 2000, which agreed that it is a desirable EU objective to raise the EU employment rate from 61% to 70% by 2010. What is the basis for such welfare judgments in macroeconomics? The Jackson Hole conference contained a great deal of debate as to whether the inflation rate target should be zero. King recognised clearly the need to give consideration to the precise objectives of monetary policy. Different forms of the 'Golden Rule' for borrowing have been debated (see, for example, Balassone and Franco 2000). There is, however, a basic question as to the relation between these welfare judgments and the welfare of individuals. Are inflation targets, golden rules and employment targets means to achieving a more fundamental objective of maximising the welfare of citizens?

Suppose that we turn to macroeconomic textbooks as an indicator of the state of thinking. To examine this, I have taken five textbooks by leading macroeconomists: four texts from the United States (Blanchard 1997, Dornbusch and Fischer 1994, Hall and Taylor 1993, Mankiw 1994), and one European text (Burda and Wyplosz 1997). The last of these has the fullest discussion of the role of welfare judgments:

> 'macro-economics can explain the economy . . . This is *positive economics*: it refrains from value judgments. *Normative economics* takes a further step and passes judgement or makes policy recommendations. In doing so, it must specify what criteria are used in arriving at particular conclusions. This inevitably implies a value judgment' (1997, p. 14, their *bold*).

They go on to say that

> 'Economists generally like to make policy recommendations . . . In this text however we will generally refrain from normative economics' (1997, p. 14).

Overall, Burda and Wyplosz do so refrain, although there are exceptions. For example, in chapter 5 we encounter the 'Golden Rule' according to which savings in a country should be raised to the level where the marginal return to capital is equal to the rate of growth. This is an important conclusion, but it cannot be reached without invoking some criterion by which to judge different economic outcomes. As it is put by Hall and Taylor, in their discussion of the design of policy

> 'to describe our objectives for the target variables, it is necessary to define a social welfare function' (1993, p. 544).

The first point to be made therefore is the obvious – but often neglected – principle that policy evaluation can only be made on the basis of a specified set of objectives, and that these should be explicit, not implicit. Golden Rules of accumulation are not the only ways in which judgments enter. Another example, common to all five texts, is an analysis of the 'social costs' of inflation, and, in some cases, of 'optimal inflation' (Blanchard 1997, p. 569, and Burda and Wyplosz 1997, p. 418).

The analysis of inflation illustrates the point made in the Introduction about the relation with political economy. We need to keep separate two different kinds of consideration. The first is that already identified: the evaluation of an economic policy according to a specified set of ethical principles. The second is the extent to which the policy finds favour with the public. It appears to be the latter that Dornbusch and Fischer have in mind when they say, regarding the costs of inflation, that

> 'the fact that unanticipated inflation acts mainly to redistribute wealth has led to some questioning of the reasons for public concern over inflation. The gainers, it seems, do not shout as loudly as the losers'(1994, p. 521).

Hall and Taylor say that

> 'the American public has made it abundantly clear that inflation is unpopular. In 1976 and 1980 two Presidents – Ford and Carter – were denied re-election soon after large bursts of inflation' (1993, p. 548).

But we need to distinguish between the argument that inflation enters negatively into individual welfare and the argument that inflationary policies are not politically sustainable. One is the province of welfare economics; the other is the province of political economy. The same distinction applies at the level of international macro-economic policy. When the IMF monitors the equity implications of its country policies, this can be interpreted either as an intrinsic concern with the distribution of the costs and benefits of reform or as an instrumental concern with the political feasibility of the reform, a distinction clearly recognised by Stanley Fischer, in his capacity as First Deputy Managing Director of the IMF, in his Welcoming Statement to the IMF conference on 'Economic Policy and Equity' (1999). An instrumental concern with the political sustainability of adjustment programmes may lead to different equity criteria: for example, drawing the poverty line at a level that includes politically sensitive groups. The geography of poverty may take on particular meaning if it is political acceptability that is the benchmark. The recent interest of macro-economists in political economy is to be welcomed, but it should be kept separate from welfare economics.

Finally, if we examine the journal literature on macroeconomics we find that it is full of welfare assessments. The following is a list of just some examples: the welfare cost of business cycles (Lucas 1987), the efficient level of unemployment (Diamond 1981), the welfare effects of labour market policy (Millard and Mortensen 1997, Mortensen and Pissarides 1998, 1999), the welfare cost of nominal wage contracting (Ball and Romer 1990), the welfare gains from monetary union (Carré and Collard 1999), and the welfare implications of macroeconomic interdependence (Corsetti and Pesenti 1998).

IV. INTERTEMPORAL ALLOCATION AND GOLDEN RULES

The reader may accept that welfare judgments are pervasive in economics but not be persuaded that we need to examine their foundations. In the remainder of this paper, I take one illustrative application: the optimal level of capital accumulation over time. This is not a remote, academic exercise. Whether or not we are saving enough is a key political concern. If we should be investing until the rate of return falls to x per cent, then the determination of x is a critical matter.

How then are issues of intertemporal allocation addressed in the macroeconomic literature? The standard approach is to consider the welfare of a representative individual defined over the infinite future (see, for example, Blanchard and Fischer 1989, p. 39):

$$\sum_{t=0}^{\infty} (1+\beta)^{-t} U(c_t) \tag{1}$$

where t is the date, and $U(c_t)$ denotes the instantaneous utility from consumption per capita, c_t, at date t. A crucial role is played here by β, which is the rate at which future utility is discounted, measuring the degree of impatience. As is noted by Bliss (1975, p. 282) it is important to distinguish between this rate and the rate at which future flows of goods are discounted (for which I later use r). Broome (1994) has brought out how the use of the word 'discount' in two different senses has caused confusion between economists and philosophers. Philosophers think in terms of discounting well-being, which they tend to regard as objectionable, whereas economists more commonly apply discounting to market goods. As Broome stresses,

> 'it is perfectly consistent to discount commodities ($r > 0$) and not wellbeing ($\beta = 0$)' (1994, p. 129).

In what sense can (1) provide a basis for welfare judgments? Macroeconomists tend to move straight from individual to social welfare. For example, according to Blanchard and Fischer,

> 'if the economy has identical infinitely long-lived individuals, the social welfare function naturally coincides with the utility function of these individuals' (1989, p. 567).

However, even with the assumption that the economy has identical infinitely long-lived individuals, there may well be situations in which the social evaluation departs from the private. A good example is provided by the discounting of instantaneous utility. For an individual dynasty such impatience is a matter of family preferences and if they are agreed then they are agreed. But that is a private judgment, whereas socially the discounting of instantaneous utility has been questioned. Many years ago, Pigou argued that

> 'our telescopic faculty is defective, and that we, therefore, see future pleasures, as it were, on a diminished scale' (1952, p. 25).

He gave two reasons: the finiteness of human lifespans and impatience. The first of these shifts our perspective towards finite generations, to which I come in a moment, but the second applies even with infinitely-lived dynasties and casts doubt, for example, on the application by Lucas in his *Models of Business Cycles* (1987) of a positive discount rate to utility: in his numerical calculations, he takes $(1 + \beta) = 1/0.95$, which means that utility in 30 years is valued at around a fifth of today's utility.

In contrast to Lucas, Ramsey (1928), in his original article on optimal savings, was categorical that

> 'we do not discount later enjoyments in comparison with earlier ones, a practice which is ethically indefensible and arises merely from weakness of the imagination' (1928, p. 543).

This has proved controversial. Ramsey's view was rejected by, for example, Eckstein (1957) and Marglin (1963) on the grounds that the government's social welfare function should respect preferences (consumers' sovereignty):

> 'I want the government's social welfare function to reflect only the preferences of present individuals . . . I consider it axiomatic that a democratic government reflects only the preferences of the individuals who are presently members of the body politic' (Marglin 1963, p. 97).

But this is an elision of political economy and ethical arguments, of the kind I have already noted. What is appropriate for a democratic government is a different question from what is normatively justifiable (see Broome 1994). As Sen pointed out (1961), the fact that the views of the present generation are decisive is a reflection of political presence, not purely of consumers' sovereignty. Sen goes on to consider a different argument for discounting, which is that there is uncertainty, not just about individual lifetime, but also about the survival of a society. There is a non-zero probability that natural, or man-made, disaster will bring the planet's existence to an end. If this is constant, then discounting at rate β may be ethically quite defensible, although a rate of 5 per cent seems far too pessimistic. If you think that there is a 40 per cent chance that the world will not survive into the next century, then this indicates a value of $\beta = 0.5$ per cent, or an order of magnitude smaller than the rate of utility discount assumed by Lucas.

1. Overlapping Generations

The finiteness of human life has been finessed in the macroeconomic literature by the assumption that today's individual decision-makers take account of the consumption of future generations. Distributional issues over time are avoided by the device of assuming that the current generation's choices incorporate the welfare of future generations – that they form a dynastic view. The current valuation incorporates the welfare of all succeeding generations, and there is no disagreement[1]. There is none of the intergenerational conflict which is the staple of literary plots and real life.

1. Although a matter for political economy, I note in passing that the dynastic assumption raises the issue as to whether in a democracy only the head of the dynasty should be allowed to vote? Otherwise, with overlapping generations born continuously, individual lineages will be represented to different degrees depending on the stage of the life-cycle: e.g., with voting from age 18, a generation length of 36 years, and a lifetime of 72 years, a person will belong to a family with 2 votes for half his or her life and 1 vote otherwise.

Suppose now that we recognise that there are overlapping generations each with their own welfare evaluation, as set out in the consumption loan model of Samuelson (1958), a model taken as a case study by Hausman and McPherson (1996) to show how ethical questions are intermingled with economic theory. Suppose that all members of the family alive at a particular date (for example a father and his $1 + n$ sons, where the population is growing at a constant rate n) share equally in consumption, so that there is equal consumption per head denoted by lower case c. This seems the most favourable assumption if we are seeking to justify the textbook macroeconomic approach, but there is still room for differences of view as to the appropriate optimal policy.

To see this, let us set out more formally the argument regarding the desirability of increasing savings. If consumption per head in year 0 is reduced by 1 unit, then assuming no differences in consumption, the cost is $U'(c_0)$. Suppose that the rate of return (net of depreciation) is $1 + r$, then with the population growing at rate n, the extra consumption per head in year 1 is $(1 + r) / (1 + n)$ and the increase in discounted utility is this amount multiplied by $U'(c_1) / (1 + \beta)$. (This is a heuristic derivation of the Keynes-Ramsey rule, see Heal 1973, p. 274–275, Blanchard and Fischer 1989, p. 41 or Romer 1996, p. 45.) If the optimal policy converges to a steady state with constant consumption per head, as it does under certain conditions, then in that steady state the marginal utilities of consumption are equal (since $c_0 = c_1$) and the condition for optimality is that (where $\beta \geq 0$ ensures the existence of an optimal policy)

$$(1 + r) = (1 + n)(1 + \beta) \tag{2}$$

The rate of return is equal (neglecting $n\beta$) to the rate of (population) growth plus the rate of impatience. In the absence of discounting, in general the sum diverges, but a comparison can be made for finite horizons. If there exists a date such that a policy is better for all finite horizons beyond that date, then the overtaking criterion is said to be satisfied (see von Weizsäcker 1965, Koopmans 1967 and Heal 1973, chapter 11).

Two issues now need to be clarified. First, the condition (2) is often referred to as the *Modified Golden Rule* since, where $\beta > 0$, it differs from the Golden Rule, which equates r and the rate of growth:

$$(1 + r) = (1 + n) \tag{3}$$

This is because it is the solution to a different problem. The Golden Rule about which students learn in such textbooks as Mankiw (1994, p. 88) assumes that the choice is simply between steady state paths, ignoring the point of departure.

As was recognised early (Pearce 1962), the problem of choosing a steady state given a free choice of initial capital, ignoring the transition costs, is a significantly different problem from that of choosing the best path starting from a prespecified initial capital stock.

The second clarification concerns the formulation of the welfare function. The above calculation is based on the assumption that the objective function is a sum of the welfares of representative individuals in each generation, whereas a utilitarian form of the social welfare function would take the total utility at each point, multiplying by $(1 + n)^t$:

$$\sum_{t=0}^{\infty} (1 + \beta)^{-t} (1 + n)^t U(c_t) \tag{4}$$

(we now require $\beta \geq n$ for existence of an optimal policy). In this case the optimal policy approaches a steady state where

$$(1 + r) = (1 + \beta) \tag{5}$$

The rate of return should equal the rate of impatience.

There are therefore different ways of formulating the intertemporal objective function: with and without utility discounting, and representative versus total utility. The steady state rate of return should equal n, or $n + \beta$, or β. The choice of objective can make a substantial difference to the policy conclusions drawn. Suppose we ask whether present capital stock is above or below the steady state implied by an optimal policy. Romer (1996, p. 84) suggests that the marginal product of capital net of depreciation in the US is about 10%, which is much more than the growth rate, indicating that capital accumulation should be increased. If, however, we are comparing it with the growth rate plus the Lucas rate of impatience of 5%, then the contest becomes much closer. The present capital stock may be close to the optimal level, and we may not need to tighten our belts.

2. Heterogeneity of Interests

The standard social welfare objective, such as (1), takes no account of differences across people at date t. In his assessment of the welfare cost of business cycles, Lucas (1987) talks of the 'average American family'. There is no allowance for heterogeneity of individual interests among today's citizens, a matter which cannot be avoided simply by referring to social insurance (see the critique by Brandolini 1992). Building macroeconomic models with identical rep-

resentative agents may conceal potential differences of interest, but they are still there. One cannot help noting here the sharp contrast to the example used in the 1930s discussion of welfare criteria: the repeal of the Corn Laws, where conflicting interests were central to the analysis. A representative agent model would indeed have appeared extraordinary to classical economists. I should stress that my criticism is distinct from that which has been made on grounds of realism, where a number of authors have argued that it is highly misleading. Kirman, reviewing the micro-economic foundations, has concluded that

> 'the representative agent should have no future. Indeed, contrary to what current macroeconomic practice would seem to suggest, requiring heterogeneity of agents . . . may help to recover aggregate properties which may be useful for macroeconomic analysis' (1992, p. 134).

Suppose that we consider distributional differences among the older, retired people in a two cohort overlapping generations model. Their remaining one period welfare (leaving aside any bequest motive) depends on the rate of return, their assets and on any state transfer. If the government pursues a policy of encouraging savings, and has the general equilibrium consequence of driving down the rate of return, then this may reduce inequality between pensioners with and without substantial assets. On the other hand, if the policy is achieved by restrictive budgetary policy, cutting state transfers, then the poorest pensioners may be most adversely affected. How we evaluate these distributional changes is a major issue. Here I simply draw attention to one important question. How does our concern about distributional justice at a point in time relate to our concern about justice between generations? If we adopt a classical utilitarian approach to summing welfare across generations, does this mean that we should employ the same criterion, and representation of utility, at a point in time? Is it consistent for example to adopt a Rawlsian concern for the least advantaged in a cohort yet not to apply the same approach to intergenerational justice?

3. Non-Welfarist Objectives

I have just referred to a Rawlsian approach to distributional justice focusing on the minimum level of welfare, an approach which is often contrasted with classical summation of utility. The contrast is however greater than simply in functional form. Rawls (1971) is concerned with the position of the least advantaged defined not by personal welfare, but by 'primary goods', or 'things that every rational man is presumed to want'. This takes us outside the traditional scope of welfare economics. In the same way, Sen has made a forceful case that assessment of the standard of living should focus on

> 'neither commodities, nor characteristics (in the sense of Gorman and Lancaster), nor utility, but something that may be called a person's capability' (1983, p. 160).

Capability refers to the freedom that a person has in terms of choice of functionings, where the latter refer to what a person can achieve. In the case of the older generation, capacity to function may be heavily influenced by health status. This means that we need to look at 'non-welfarist' indicators such as excess morbidity and mortality. These may in turn depend on the supply of public provision. Macroeconomic policy is then important to the extent that it affects public expenditure.

V. CONCLUSIONS

The intertemporal allocation case study shows that the standard social welfare function is based on a number of (typically implicit) assumptions which need to be questioned. What is the justification for discounting utility? How should we weight different generations? Should we adopt the same attitude to inequality at a point in time and to inequality across time? Should we adopt a non-welfarist approach?

The first conclusion I draw is that we need to make explicit the welfare basis for evaluative statements, and that students of macroeconomics, as of other branches of economics, need to be made aware of the issues. Layard has expressed the view that

> 'no policy remarks should be included in micro textbooks until the issues of welfare economics have been properly discussed' (1999, p. 6).

I fully agree, and see no reason why this should be limited to microeconomics. The welfare basis of policy evaluation is a topic which should receive greater priority in economics. Textbooks should contain a section explaining to readers the basic problems in making evaluative statements. A proper basis for welfare prescriptions is essential because (a) there is scope for significant differences of view about the form of social objectives and (b) these differences can seriously affect the conclusions drawn for major policy issues.

What can we expect to learn from such examination of the ethical basis for policy evaluation? The first potential gain is in consistency. If, as in the advanced textbook of Romer (1996), the student of macroeconomics meets both the Golden Rule of capital accumulation and the Lucas measure of the welfare costs of business cycles, then he or she needs to understand the relationship between the objective functions employed in the two cases. If in one case the cri-

terion exhibits impatience, then it should in the other. The second gain is in understanding the logic of policy argument. If, for example, one wishes to extend the welfare analysis to an open economy, then the proper formulation of the social objective in a world where there are multiple societies depends on the foundations of the objective function.

It is of course tempting to say that economists should practise division of labour and leave ethical issues to moral philosophers. Economists should 'stick to their last'. This is not a principle economists often follow. We do not do the same with statistical analysis. As a profession we require economists to understand the basics of econometrics. In the same way, we could reasonably require that they understand the basics of evaluative calculus. Just as one should be able to inspect estimated statistical relations, so too a well-trained economist should be able to scrutinise the moral underpinnings of a policy statement. Moreover, there are two reasons why economists cannot simply sidestep their responsibilities in this way. The first is that many of the key issues can only be understood in the context of relatively sophisticated economic models. With a few very notable exceptions, those who write on moral philosophy do not incorporate recent developments in economics. As Hausman and McPherson have said of the dynamic allocation problem discussed above,

> 'there are few moral philosophers with the command of the technical apparatus of economics required' (Hausman and McPherson 1996, p. 207).

The second reason is that the relation between economics and ethical principles is not linear but rather iterative. Examination of the implications of moral principles in particular models may lead to their revision. By applying ethical criteria to concrete economic models, we learn about their consequences, and this may change our views about their attractiveness. After demonstrating the sensitivity of optimal resource depletion policies to whether or not we discount future utilities, Dasgupta and Heal conclude that

> 'it is a legitimate exercise to revise or criticize ethical norms in the light of their implications' (1979, p. 311).

I fully share this view. This paper too is likely to be part of an iterative process, in that I may well wish to revise my views in the light of comments.

REFERENCES

Balassone, F. and D. Franco (2000). Public Investment, the Stability Pact and the 'Golden Rule', *Fiscal Studies*. 21: 207–229.

Ball, L. and D. Romer (1990). Real Rigidities and the Non-neutrality of Money, *Review of Economic Studies*. 57: 183–203.

Baumol, W. J. (1965). *Welfare Economics and the Theory of the State*, Second Edition. London: G. Bell.

Blanchard, O. J. (1997). *Macroeconomics*. New Jersey: Prentice Hall.

Blanchard, O. J. and S. Fischer (1989). *Lectures on Macroeconomics*. Cambridge: MIT Press.

Bliss, C. J. (1975). *Capital Theory and the Distribution of Income*. Amsterdam: North-Holland.

Brandolini, A. (1992). Nonlinear Dynamics, Entitlement Rules, and the Cyclical Behaviour of the Personal Income Distribution, CEP Discussion Paper 84, London School of Economics.

Broome, J. (1994). Discounting the Future, *Philosophy and Public Affairs*. 23: 128–156.

Burda, M. and C. Wyplosz (1997). *Macroeconomics*, Second Edition. Oxford: Oxford University Press.

Carré, M. and F. Collard (1999). Monetary Union: A Welfare Based Approach, CREST Discussion Paper 9962, INSEE, Paris.

Corsetti, G. and P. Pesenti (1998). Welfare and Macroeconomic Interdependence, Discussion Paper.

Dasgupta, P. S. and G. M. Heal (1979). *Economic Theory and Exhaustible Resources*. Welwyn: Nisbet.

Diamond, P. A. (1981). Mobility Costs, Frictional Unemployment, and Efficiency, *Journal of Political Economy*. 89: 798–812.

Dornbusch, R. and S. Fischer (1994). *Macroeconomics*, Sixth Edition. New York: McGraw-Hill.

Eckstein, O. (1957). Investment Criteria for Economic Development and the Theory of Intertemporal Welfare Economics, *Quarterly Journal of Economics*. 71: 56–85.

Fischer, S. (1999). A View from the IMF, in: V. Tanzi, K.-Y. Chu and S. Gupta (eds.), *Economic Policy and Equity*. Washington, DC: IMF.

Frey, B. S. (1978). *Modern Political Economy*. Oxford: Martin Robertson.

Frey, B. S., W. W. Pommerehne, F. Schneider and G. Gilbert (1984). Consensus and Dissension Among Economists, *American Economic Review*. 74: 986–994.

Graaff, J. de V. (1957). *Theoretical Welfare Economics*. Cambridge: Cambridge University Press.

Hall, R. E. and J. B. Taylor (1993). *Macroeconomics*, Fourth Edition. New York: W. W. Norton.

HM Treasury (1997). *A Code for Fiscal Stability*. London: HMSO.

Hausman, D. M. and M. S. McPherson (1996). *Economic Analysis and Moral Philosophy*. Cambridge: Cambridge University Press.

Heal, G. M. (1973). *The Theory of Economic Planning*. Amsterdam: North-Holland.

King, M. A. (1999). Challenges for Monetary Policy: New and Old, in: *New Challenges for Monetary Policy*: Kansas City: Federal Reserve Bank of Kansas City.

Kirman, A. P. (1992). Whom or What Does the Representative Individual Represent?, *Journal of Economic Perspectives*. 6: 117–136.

Koopmans, T. C. (1967). Objectives, Constraints and Outcomes in Optimal Growth Models, *Econometrica*. 35: 1–15.

Kreps, D. M. (1990). *A Course in Microeconomic Theory*. Princeeton: Princeton University Press.

Layard, R. (1999). *Tackling Unemployment*. London: Macmillan.

Little, I. M. D. (1957). *A Critique of Welfare Economics*, Second Edition. Oxford: Oxford University Press.

Lucas, R. E. (1987). *Models of Business Cycles*. Oxford: Basil Blackwell.

Mankiw, N. G. (1994). *Macroeconomics*. New York: Worth.

Marglin, S. A. (1963). The Social Rate of Discount and the Optimal Rate of Investment, *Quarterly Journal of Economics*. 77: 95–111.

Millard, S. P. and D. T. Mortensen (1997). The Unemployment and Welfare Effects of Labour Market Policy: a Comparison of the USA and the UK, in: D. J. Snower and G. de la Dehesa (eds.), *Unemployment Policy*. Cambridge: Cambridge University Press.
Mortensen, D. and C. Pissarides (1998). Job Reallocation, Employment Fluctuations and Unemployment Differences, in: M. Woodford and J. Taylor (eds.), *Handbook of Macroeconomics*. Amsterdam: North-Holland.
Mortensen, D. and C. Pissarides (1999). New Developments in Models of Search in the Labor Market, in: O. C. Ashenfelter and D. Card (eds.), *Handbook of Labor Economics, Volume 3B*. Amsterdam: North-Holland.
Pearce, I. F. (1962). The End of the Golden Age in Solovia, *American Economic Review*. 52: 1088–1097.
Pigou, A. C. (1952). *The Economics of Welfare*, Reprint of Fourth Edition. London: Macmillan.
Ramsey, F. P. (1928). A Mathematical Theory of Saving, *Economic Journal*. 38: 543–549.
Rawls, J. (1971). *A Theory of Justice*. Cambridge, Massachusetts: Harvard University Press.
Romer, D. (1996). *Advanced Macroeconomics*. New York: McGraw-Hill.
Samuelson, P. A. (1958). An Exact Consumption-loan Model of Interest with or without the Social Contrivance of Money, *Journal of Political Economy*. 66: 467–482.
Scitovsky, T. (1952). *Welfare and Competition*. London: Allen and Unwin.
Sen, A. K. (1961). On Optimizing the Rate of Saving, *Economic Journal*. 71: 479–496.
Sen, A. K. (1983). Poor, Relatively Speaking, *Oxford Economic Papers*. 35: 153–169.
Solow, R. M. (1998). *Work and Welfare*. Princeton: Princeton University Press.
Sugden, R. (1993). A Review of *Inequality Reexamined* by Amartya Sen, *Journal of Economic Literature*. 31: 1947–1962.
Svensson, L. E. O. (1999). How Should Monetary Policy be Conducted in an Era of Price Stability? *New Challenges for Monetary Policy*. Kansas City: Federal Reserve Bank of Kansas City.
Varian, H. (1993). *Intermediate Microeconomics*, Third Edition. New York: Norton.
von Weizsäcker, C. C. (1965). Existence of Optimal Programs of Accumulation for an Infinite Time Horizon, *Review of Economic Studies*. 32: 85–104.