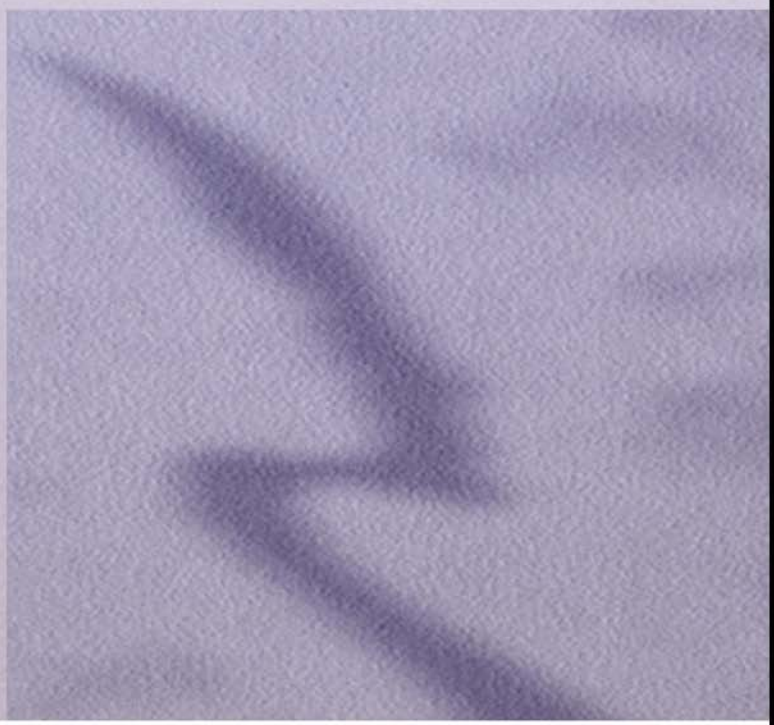
Pareto, Economics and Society

The mechanical analogy

Michael McLure

Routledge Studies in the History of Economics



Pareto, Economics and Society

Vilfredo Pareto was one of the great systems theorists of the twentieth century. His systems embraced theories of economics, psychology, sociology and politics. In this important work, Michael McLure takes as his subject of study the rapport between Pareto's economic and sociological approaches to theory, and consequently illuminates the role of economics in public policy development.

A central theme of this book is the overarching role of the 'mechanical analogy' in all of Pareto's work. Important aspects and implications of Pareto's work considered by the author include

- relations between pure economic theory and general sociology
- the problem of collective economic welfare
- the juxtaposition of Pareto's political sociology to Buchanan's public choice/constitutional economics
- Pareto and methodology
- implications for public policy and government

Emerging from this investigation is a new, multidisciplinary research framework for economists, sociologists and political scientists, and an invaluable 'Paretian' framework for the study of government and public policy.

Michael McLure is a researcher for the Western Australian Treasury on matters related to economic and financial policy. His work on Pareto includes a four-volume edited collection, with J.C.Wood, *Vilfredo Pareto: Critical Assessments* (Routledge 1999).

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Richard Arena and Cecile D angel

44 On the Development of Long-run NeoClassical Theory
Tom Kompas

45 Economic Analysis and Political Economy in the Thought of Hayek
Edited by Thierry Aimar and Jack Birner

46 Pareto, Economics and Society
The mechanical analogy
Michael McLure

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Contents

Illustrations

Tables

Figures

Foreword

Warren J.Samuels

One is tempted to feel sorry for Vilfredo Pareto—one of the great systems theorists of the twentieth century.

He is remembered by economists chiefly for his notion of optimality, centering on the exhaustion of gains from trade. Pareto optimality, as it is now universally called, embodied a particular, conservative approach to economic welfare, one in which change emerges only from exchange.

But the notion of Pareto optimality is only a small, indeed an infinitesimal, part of Pareto's total system. His system embraces theories not only of economics but of psychology, sociology, and politics—all of which comprised his general sociology; theories of knowledge, psychology, and power; theories of elites and of the circulation of elites; theories of logical and non-logical conduct; and, *inter alia,* theories not only of gains from trade but of power and mutual manipulation, with knowledge and pseudo-knowledge among the instruments of power in the manipulation of psychic states. The notion of Pareto optimality hardly reflects what Pareto believed was actually going on in society, economy and polity—or, for that matter, in the minds of individual economic actors.

The neglect of his larger understanding and total system, however, is due, to no small degree, to Pareto himself. Pareto was one of a relative handful of economists who emphasised the combination of optimality and equilibrium as analytical tools. The twin foundational features of neoclassical economics thus are due in part to him: first, the picturing of the economy in terms of a pure abstract a-institutional conceptual model of 'the market'; and second, the neoclassical research protocol calling for the production of unique, determinate, equilibrium, optimal results.

Still, given the broad compass of Pareto's total system and the complexity of the multiplicity of elements that comprise that system, it is not surprising that his system can be interpreted, formulated and extended in different ways. In this respect, Pareto's total system is akin to that of Adam Smith. Smith's system includes the three domains of moral sentiments and rules, law and government, and market, and rests on diverse paradigmatic foundations: naturalism, supernaturalism, empiricism, utilitarianism,

secularism, pragmatism, historicism, and more. Whereas the broad outlines of Smith's system are clear, both their meaning and significance and their relations to questions of policy are not, and multiple interpretations have ensued. The same is true of Pareto.

The matter is more complicated. The interpretation of Pareto varies, first, with one's choice of general interpretive standpoint; second, with one's specific formulation of that standpoint; third, with how one specifies Pareto's evolving ideas, i.e. which of his publications one deploys; and fourth, with one's choice of a basis of comparison. Apropos of the last, Michael McLure juxtaposes James Buchanan's ideas to those of Pareto. But Buchanan's ideas have evolved in material respects; and instead of Buchanan, McLure might have used Friedrich von Hayek, whose ideas, too, have not only also undergone change but have been given different readings.

McLure's work pursues one general line of development, advancing Pareto's mechanistic approach while endeavouring both to maintain something of the breadth of his system and to distinguish between conclusions pertaining to form and to substance. McLure develops

1 the relation between pure economic theory and general sociology
2 the use of mechanism and determinism
3 the relation of Pareto's categories of logical and non-logical conduct in light of items 1 and 2
4 the problem of collective economic welfare
5 the juxtaposition of Pareto's political sociology to Buchanan's public choice/constitutional economics
6 the implications for public policy and government

The result is not Pareto; it is not as much, if at all, an attempt to restate Pareto in modern terms, as it is a reformulation and extension of Pareto in the modern mode. One wonders how Pareto would react to this work: would he applaud McLure's formulation and use of mechanism and determinism, of form and substance, and of stable and unstable social equilibria, or would he lament the loss of open-endedness and even of ambiguity characteristic of his total system of interdependence over time?

McLure is very complimentary about my work on Pareto, now over a quarter-century old. Both my agenda and my analytical methods are different from McLure's, and I am not entirely comfortable with, first, his specific treatment of my work in regard to his notions of freedom as change and control as continuity, and of government and the policy process; and second, with what, of Pareto's total system, he has had to finesse in order to reach his analytical equilibrium conclusions. The informed reader will appreciate that I have no quarrel with McLure; my displeasure is with the modern mode of doing economics that uses equilibrium and optimality in a manner that tends to emasculate much of what is so interesting and important in

Pareto's total system—the process of interdependence among knowledge, psychology and power variables.

Nonetheless, McLure's approach and his interpretation and extension of Pareto's analysis are legitimate and lead to much thought and reflection. Given the approach McLure has taken, he reaches many insightful conclusions. If some or much—but not all—of what Pareto considered important is finessed, Pareto has largely only himself to blame!

One of McLure's conclusions may be cited. He writes that

> When there is political instability associated with forces for change in the substance and form of government, public policy cannot be considered in isolation from action to modify the balance of political power, and a positive theory of public policy (as defined from this study) cannot be developed.

This conclusion derives from at least two things. First, that analysis of static stable equilibrium is highly limited in regard to the analysis of power. The substantive conclusions are a function of, and give effect to, the structure of power (governing whose interests count, say, as a cost to others), such that rejection of the substantive conclusions compels consideration of changing the structure of power. Second, the particular specification of a 'positive' theory of public policy used in the study, which is narrower than the broadest one to be found in Pareto.

Neither McLure's nor my treatment of Pareto will be final. Pareto is so important, in my view, that much more work along his lines is eminently warranted.

McLure's work is a significant contribution. Indeed, if it succeeds in expanding the domain of public choice/constitutional economics it will have more than compensated for having to finesse some of Pareto's ideas. Even better, if it succeeds in expanding Paretian economics beyond Pareto optimality in the minds of economists, it would be a huge success.

Preface

The research programme that culminated in this book followed from the chance discovery of a selection of Pareto's work in 1994, during a break in an evening class on the Italian language. While aimlessly browsing the economics shelves at the university library, my curiosity was aroused by two sets because they were written in Italian; one entitled *Corso di Economia Politica* (Pareto 1949a, 1949b), the other entitled *Lettere a Maffeo Pantaleoni* (Pareto 1960a, 1960b, 1960c). Both sets were written by Vilfredo Pareto, with the latter edited by Gabriele de Rosa.

On first examination I was intrigued. Not only did they appear to be important documents for historians of economics, they also shed considerable light on the role of economics in public policy development within its political context. The latter point was particular interesting to me. At the time, I was employed by the Western Australian Treasury Department to research revenue policy matters, and had often contemplated the limits of economic theory for policy purposes and how social factors should be considered. Following the discovery of these volumes, a profound interest in Pareto's contribution to the study of economics and society soon emerged.

The consequent research programme which developed, and which resulted in this book, focused on the relationship between Pareto's pure economics and general sociology. The central point of reference for the programme was Pareto's analogy with mechanics, with the consequent rapport between these two theoretical approaches to social phenomena examined to determine whether it could provide a suitable framework for the study of government and public policy.

This book is a socio-economic study. It attaches considerable importance to Pareto's 'successive approximations' approach to science and, related to this, his variation in the level of determinism in pure theory when social forces are either stable or unstable. The study culminates in the development of a synthetic framework for the study of government and public policy. This should be regarded as a suggested Taretian framework' for the study of political conduct, rather than 'Pareto's framework'.

I believe that this book makes three worthwhile contributions: it corrects errors in the economic literature on Pareto's mechanical analogy; it clarifies findings in the secondary literature on Pareto and policy; and it enhances

the existing literature by introducing a particular synthesis to the study of politics.

Interestingly, this manuscript has been finalised for publication at a time when there is a renewed interest in the European continent in the work of Pareto. The trigger for this revival appears to be the one hundredth anniversary of Pareto's first major economic work, the two-volume French language *Cours d'Economie Politique,* first published in 1896 and 1897. The increased number of articles and publications on Pareto provides clear evidence of this renewed interest. There are three particularly important examples. Volume 3 of the 1997 (Italian produced) journal, *History of Economic Ideas,* is devoted to Pareto and his *Cours*. The papers from the 1997 conference on Pareto and the *Cours* at the University of Turin are currently in preparation for publication as a book (Malandrin and Marchionatti, forthcoming). Finally, the 1998 conference papers from the colloquium organised by the Centre d'Etudes Interdisciplinaires Walras-Pareto of the University of Lausanne on the subject of "L'Equilibre Général: Entre Economie et Sociologie" were published in 1999, in the *Revue Européenne des Sciences Sociales,* vol. 37, no. 16.

Also, it is significant that two new additions to Pareto's thirty-volume *Oeuvres Complètes* are currently being prepared, the first new additions to the collection in twelve years.

As the *Cours* has not been translated into English, it is perhaps not surprising that the renewed interest in Pareto and the *Cours* has centred on Continental Europe. It is my hope that this book will help extend the current rediscovery of Pareto to the general community of English-speaking economists. While this study is influenced by the Italian research on Pareto, its investigative framework draws heavily on the American approach to Pareto. This is typified by the fundamental influence of Vincent Tarascio's work on methodology upon this study, and by the fact that my starting point for the study of politics is influenced by Warren Samuels' work. Consequently, it is also hoped that this 'mid-Atlantic' book will complement European studies on Pareto while retaining a strong link to the American (and the more general English language) tradition of Paretian research.

The American link is also accentuated by the forward to this study, written by Warren J.Samuels. He contrasts the equilibrium approach to government and policy underlying this research with his own approach to this subject, which is grounded in the investigation of processes associated with interdependence. It is my hope that this study, and Professor Samuels' foreword, will generate a debate on the respective importance of 'equilibrium' and 'process' in Pareto's work and in Paretian studies. In this regard, scholars will find the major English language studies on Pareto's work written over the last hundred years in a four-volume Routledge collection, published in 1999 under the title *Vilfredo Pareto: Critical Assessments of Leading Economists*.

It is also my hope that economists, sociologists and political and policy scientists in search of multidisciplinary research frameworks will not only discover this study, but also see fit to apply the Paretian framework developed within it to their own studies of concrete political conduct.

Finally, I would like to acknowledge some of the many people who played a very important part in the realisation of this work. I am particularly grateful to Associate Professor Ian A.Kerr, Associate Professor Phillip Anthony O'Hara and Professor John Cunningham Wood for their valuable guidance of my Ph.D. research programme between 1995 and 1999 at Curtin University of Technology. I would also like to thank: Mr Luciano Pinto (University of Western Australia) for his excellent advice on translating Italian text into English; Emeritus Professor Warren J.Samuels (formerly of Michigan State University) for kindly writing the foreword to this book; Doctor Fiorenzo Mornati (Centre d'Etudes Interdisciplinaires Walras-Pareto at the University of Lausanne) for providing many detailed comments and observations on what are now Chapters 1, 2, 3 and 8; Professor Vincent J.Tarascio (University of North Carolina) for providing general comments on Chapter 4; Professor Aldo Montesano (Università Commerciale 'Luigi Boconi', Milan) for providing comments and engaging in discussions on Chapter 5; and Professor Antonio Cardini (Università degli Studi di Siena) for discussing aspects of Chapter 6 with me while I was an exchange scholar at the University of Siena.

I dedicate this book to Mary, Emily, Andrea, Esme and John.

Michael McLure
May 2000
Perth, Western Australia

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Precise referencing of the works for which the above permissions were obtained are cited in the notes to Chapter 5 and the Appendix.

1 Introduction

1.1 The purpose of the study

The purpose of this study is to examine the relationship between Pareto's economic and sociological theory in the context of government and public policy processes. The primary focus of this research is on those theoretical contributions of Pareto's that are relevant to the study of politics, with emphasis given to his analogy with mechanics.

Pareto's body of work is enormous. It ranges across disciplines, addresses many varied phenomena, and contains fragmented theoretical contributions to many of the social sciences. His work can, and has been, successfully studied without reference to the mechanical analogy. Consequently, this study provides one perspective on Pareto's work, and there is no suggestion that it is the only legitimate approach. Nevertheless, the mechanical analogy is adopted in this study because it was extensively utilised by Pareto and, since it defines a clear rapport between pure economics and general sociology, it is highly suited to the study of government and public policy.

In this context, the mechanical analogy constitutes a framework for a theoretical analysis of economic and social 'forces' using analytical instruments that reveal some similarity with physics. It is not predicated on the assumption that human conduct in society is mechanistic and precisely determined. Pareto recognised the complexities and vagaries of human conduct, and his instruments of sociological analysis developed within his mechanical analogy are applied to the study of society within that context.

Given the purpose of this study, with the associated emphasis on economic and sociological theory, Pareto's specific empirical findings have not been examined here. Applied studies are only considered in a general methodological context, where their relationship to pure or general theory (such as theory built on the mechanical analogy) is discussed.

Pareto's works of most relevance to this research are his four major theoretical treatises: the 1896–97 *Cours d'Economie Politique* (Pareto 1971a); the 1901–02 *Les Systèmes Socialistes* (Pareto 1974b); the 1906 *Manuale di Economia Politica* (Pareto 1974c); and the 1916 *Trattato di Sociologia Generale* (Pareto 1935). These works are briefly summarised in the Appendix to this volume.

The central thesis of the research and the research goals are outlined in Section 1.2 below. The contribution to the literature on Pareto that is claimed for this research is set out in Section 1.3. The approach taken in this study relative to other studies is outlined in Section 1.4. The structure of this book is summarised and discussed in relation to the research goals in Section 1.5. Conclusions drawn from the study are included in Section 1.6.

1.2 Central thesis and research goals

The central thesis

The central thesis of this study is that Pareto's methodology, and the rapport between pure economic and general sociological theory defined by the mechanical analogy, provides a useful framework for integrated and timeless studies of government and public policy.

The context within which the term 'timeless' is used in this study is general. It is based on Pareto's contention that pure theory facilitates consideration of 'virtual' movements from which hypothetical propositions can be derived. Although it is classed as 'timeless', this does not suggest that time is irrelevant to theoretical explanations of economic and social outcomes. Virtual movements take time. However, the analogy does not incorporate a clearly specified relationship between virtual movements and real time, and it does not incorporate sequences of cause and effect to introduce the passage of time as a variable that is related to economic and social outcomes.

In this study, the terms 'government' and 'public policy' both refer to political conduct. The two terms have been separately distinguished to assist the synthetic union of Pareto's general sociology and pure economics in their political contexts. Political activity that relates to the pursuit of political authority and the consequent stability or change in the collective, is referred to as 'government' activity. Political activity considered in isolation from the pursuit of political authority is referred to in the study as 'public policy'.

The central thesis of this study is sustained by establishing that the framework of Pareto's mechanical analogy enables the utility of conduct to be considered irrespective of whether the relationship between utility and conduct is 'stable and enduring' or 'unstable'. It is important to appreciate that references in this book to a 'stable and enduring' relationship between utility and conduct do not simply allude to the shape of an individual's utility function (which is important when considering stability at an equilibrium point). They also refer to the stability of the utility function itself, where individuals' preferences remain unchanged in response to virtual movement within the defined parameters of the utility function. References to an unstable relationship between utility and conduct allude to instability in the shape of the utility function, and/or instability in preferences following virtual movement within the defined parameters of the utility function.

Pareto's mechanical analogy extends beyond the notion of a stable and enduring relationship between utility and conduct; it also embraces non-enduring but generally recurring 'regularities' associated with the processes of economic and social change. In this context, the mechanical analogy suggests a rapport between Pareto's pure economics and general sociology that provides a general basis for the timeless study of conduct, including political conduct, regardless of whether utility is dependent on, or independent of, the irreversible historical path taken to achieve an outcome.

In the course of this study, the important features of the system-wide framework of the mechanical analogy, and its relevance to the study of government and public policy, is examined in some detail. It is established that Pareto's general timeless theoretical approach to examining politics is based on a synthetic unification of varying perspectives of concrete conduct, and that such a unification is possible because 'utility' is an important common theoretical element in each perspective.

The originality of Pareto's achievement is evident from the contrast between his use of utility to develop timeless generalisations about the process of social change, and the current 'received view' that timeless theoretical expressions be limited to instances where utility is always independent of the path taken to an end.

When considering the notion of ophelimity, the term that Pareto used for economic utility in circumstances where the expected and realised (cardinal or ordinal) change in utility from an action do not diverge, Pareto's tools of theoretical analysis were finely honed to yield precise and deterministic results. This is the case in pure economics. Alternatively, when expected and realised change in utility from conduct diverge, the utility function is not 'stable and enduring' in the manner described above. In this circumstance, Pareto's tools of theoretical analysis were intended to yield results that reflect broader-level generalisations about the ongoing process of change. Such generalisations abstract away from the precise form of a concrete fact. This is the case in general sociology.

This study reflects the view that Pareto's allowance for varying degrees of determinism between pure economics (highly determinant) and general sociology (not highly determinant) is based on a recognition that the extent of theoretical precision depends on whether individuals' ophelimity/utility functions are, or are not, stable and enduring. Pareto's system-wide framework is an attempt to achieve the greatest level of precision achievable from timeless theoretical constructions, without resort to a false theoretical precision. That is, without resort to outcomes from an internally consistent theoretical construction that bears little or no relation to observed conduct.

Surprisingly, Pareto's original delineation of the importance and limits of timeless theoretical models is not generally appreciated by English-speaking economists (though there are a few notable exceptions). A symptom of this general lack of appreciation is the significant misrepresentation or

misinterpretation of Pareto's work by some leading (English-speaking) historians of economic thought. Perhaps this is partly a consequence of Pareto's decision to largely treat issues related to the instability of the relationship between utility and conduct in his sociology (rather than in his economics), and the limited number of Pareto's works translated into English. There may also be other reasons for this lack of emphasis. Pareto's consideration of the impact of conduct and time on the stability of utility was often indirect, as it was presented as a contextual element of his broader goal of establishing general sociological regularities. His consideration of the matter in relation to ophelimity in pure economics was also mathematically flawed. Furthermore, some economists may not have appreciated the rapport between general sociology and pure economics, because Pareto's sociology did not limit consideration of utility to the economic context of exchange and commodity consumption.

The research goals

There are four specific research goals associated with the central thesis of this study. They are:

1 to establish the relationship between determinism and ideology in Pareto's work, after consideration of his methodology and his exposition of pure economics and general sociology in terms of an analogy with rational mechanics
2 to review the development of Pareto's application of pure economic theory to the analysis of collective economic welfare
3 to compare and contrast methodological features of Pareto's political sociology with:

   (a) relevant aspects of public choice theory, specifically Buchanan's 'economic' approach to politics
   (b) the analysis of 'irreducibly social' goods, the economic analysis of 'merit' goods and the political modification of preferences carried out by contemporary public policy analysts

4 to employ Pareto's methodological distinction between form and substance to develop a timeless and synthetic 'successive approximations' approach to interpreting the processes of 'government' and 'public policy'

These goals are cumulative. The methodological basis for Pareto's distinction between economics and sociology, and the use of the mechanical analogy in the development of timeless theory (goal 1) places Pareto's economic analysis of collective welfare (goal 2) in the correct context. The rapport between his pure economics and general sociology, and consequent scope of Pareto's

application of the economic approach to collective welfare (goals 1 and 2) provides the necessary context for a comparative examination of Pareto's political sociology and some of the main contemporary economic approaches to politics (goal 3). Finally, consideration of Pareto's theory of social equilibrium and social utility as a synthetic 'successive approximations' approach to government and public policy (goal 4) requires contextual background on methodology (goal 1), the economic approach to collective welfare (goal 2), and the sociological approach to collective welfare (goal 3).

Since Pareto was a prolific author and the secondary literature on his work is voluminous, it is essential that the research task remain focused on the goals of the thesis. In this regard, the study concerns theory derived from the mechanical analogy. The methodology employed in this thesis is a critical appraisal of relevant primary and secondary literature. The primary literature examined includes Pareto's four main treatises. Other important publications by Pareto are also considered, especially articles dealing with theory in the *Giornale degli Economisti,* as well as articles on methodology in the *Rivista Italiana di Sociologia*.

1.3 The contribution of the study

This study contributes to the literature on Pareto in three ways. Misrepresentations or errors in the secondary literature on Pareto's pure and general theory are *corrected,* similarities and differences between Pareto's approach and some modern economic approaches to government and public policy are *clarified,* and existing work on Pareto on policy is (moderately) *enhanced*.

Corrections of errors in the secondary literature

The major corrections of errors in the secondary literature contained in the study relate to misrepresentation of issues associated with Pareto's analogy between rational mechanics and pure economic theory, and their application to the study of collective economic welfare. Corrections have been made to interpretations of:

- Pareto's methodology, including concerns about hidden assumptions and the differentiation between logical and non-logical conduct;
- the implications for economic theory of Pareto's failure to master the mathematics of integrability; and
- the perceived 'crudely one sided' ideological implications of Pareto's emphasis on general interdependencies.

Clarification of issues raised in the literature

Clarification of two types of issue is attempted. First, to clarify issues raised in the secondary literature that are, in some instances, incomplete or obscure.

Second, to clarify issues which concern the relationship between Pareto's framework and theory and other more contemporary economic approaches to government and public policy.

In relation to the first type of issue, aspects missing from the secondary literature on the Scorza/Pareto polemic over Pareto's application of general equilibrium theory to study collective economic welfare are identified. It is demonstrated that there has been a tendency to overstate Scorza's influence on Pareto's work undertaken after his debate with Scorza.

Warren Samuels' (1974) suggestion that Pareto's general sociology links *freedom* with *change,* while also linking *control* with *continuity,* is also clarified and placed in a more general context.

In relation to the second type of issue, Pareto's framework and theory is made clearer by comparing and contrasting it with the public choice framework of James Buchanan, and the modern analysis of 'irreducibly social' goods and 'merits' goods.

Enhancements of the secondary literature

Finally, there has been some enhancement undertaken that is probably the most important feature of the book.

This involves the development of a framework, derived from the mechanical analogy, for a particular synthetic, successive approximations approach to public policy and government. To accommodate the mixture of circumstances where utility from political conduct can be stable and enduring or unstable and non-enduring, separate theoretical approximations are proposed for each circumstance.

The first proposed approximation is the broadest. It concerns 'government issues', such as the pursuit of political authority, and the degree of conformity in the collective and the form that the collective reveals when utility is unstable. The second proposed approximation is narrower and deals with 'public policy' issues in isolation from the struggle for political authority. Its application, however, is dependent on governing authorities having first achieved a stable balance of power, and second, having imposed stability on otherwise unstable preferences of members of the community. Once these two aspects of stability are realised, there is a logical basis for public policy objectives to be utility maximising.

From this series of approximations it is possible to identify the limits of 'scientific' considerations of government and public policy, and also to reveal the differences in Pareto's normative position on broad 'government' issues, and narrower 'public policy' issues.

1.4 Economic approaches to Paretian studies

In this research the primary emphasis is on the rapport between economics and sociology in the field of public policy and government. It unequivocally falls within the methodological approach to Pareto typified by the studies of Vincent Tarascio (1968; 1969; 1972b; 1973b; 1974; 1983; 1993; 1999). However, Giovanni Busino has made some observations on aspects of Tarascio's approach that have also had some influence on the research goals for this thesis.

To appreciate this, it is useful to first identify the various approaches to the study of Pareto by economists, to identify where Tarascio's work fits in to this body of literature, and then to outline Busino's observations on Tarascio's approach to Pareto.

Economic theorists and historians of economic thought have, by and large, investigated Pareto's contribution to mainstream economic theory. This implicitly emphasises his legacy in the context of the 'Lausanne school', but where the school is only considered in the context of its place in the history of neoclassical economic thought. This approach highlights Pareto's contribution to the study of general economic equilibrium and collective economic welfare. Another approach has been to start from Pareto's multidisciplinary methodology, and to consider how Pareto's work is distinct from contemporary theory, or whether it offers advantages that contemporary theory does not.

These two economic approaches may be loosely referred to as the *pure economic* and the *socio-economic* approaches to research into Pareto's theory of economic phenomena.

The pure economic approach to Pareto tends to focus on the historical development of Pareto's economic theory. Economists who have employed the pure economic approach to Pareto have typically focused on a range of related themes. These include the law of demand, equilibrium and value, the mechanical analogy, the welfare function, welfare economics and production theory. Studies in this tradition are highlighted in Appendix 1.1 at the end of this chapter. The socio-economic approach not only considers the history of Pareto's theory, but also the relevance of Pareto's multidisciplinary methodology and the importance of general sociology to understanding economic phenomena. The defining characteristic of this approach is the recognition of Pareto's division between *logical* and *non-logical* conduct, and the dominance of the latter over the former. Economists who have employed the socio-economic approach have, by and large, focused on the relationship between theory and methodology, collective sociological welfare, 'broad economics' and policy, and public sector finance and government. Studies in this tradition are highlighted in Appendix 1.2.

Most economists and historians of economic thought analysing Pareto's work have employed the pure economic approach. While the socio-economic

approach has been used to examine a broad range of issues, few economists have systematically adopted it.

However, the two economic approaches to Paretian studies are not mutually exclusive. Both the pure economic and socio-economic approaches are grounded in general equilibrium theory. It is simply that the socio-economic approach recognises the limited scope of human conduct that can be analysed by pure economic theory without resort to a synthesis of economics and sociology. As a result, scholars associated with the socio-economic approach have also undertaken important research on Pareto's pure economic theory, such as Schumpeter (1949), Allais (1968; 1975) Tarascio (1972) and Gross and Tarascio (1998).

Furthermore, both economic approaches to Pareto deal with his empirical economics, especially the Pareto distribution, though even on this issue there are some differences in emphasis.[1]

In addition to the two economic approaches, there is also a body of literature that may be termed the *sociological/political* approach to Pareto. Economists utilising the pure economic approach to Pareto have paid little or no regard to the literature associated with the sociological/political approach. On the other hand, economists employing the socio-economic approach to Pareto have sampled the sociological/political literature, particularly that of Talcott Parsons (1968) and Samuel Finer (1966), for further insight.

The sociological/political approach places less emphasis on general equilibrium economic theory than on Pareto's position in the history of sociological thought. In this context, Pareto is highly regarded as a critic of social theories and doctrines. Along with Emile Durkheim and Max Weber, he is also presented as one of the 'three greats' who developed a sociology or a political sociology which directly confronts the socialist perception of society (Busino 1974a, p. 10).

Discussion in the sociological/political literature of Pareto's contribution is not homogeneous. This is partly a consequence of the provocative tone of much of Pareto's work. A credible history of the secondary literature on Pareto's sociology is beyond the scope of this study.

Nevertheless, English-language sociological literature on Pareto can be broadly said to have focused on four major themes. These concern the evolution of Pareto's theoretical developments and personal ideology; the political implications of Pareto's analysis (especially his focus on elites); consideration of whether Pareto's theory is fundamentally static, cyclical or evolutionary; and the influence and reception of Pareto's work in the United States of America and the United Kingdom. Sociological/political studies on these themes are highlighted in Appendix 1.3.

For the purposes of this study it is also appropriate to note the very strong Italian tradition in Paretian research that embraces all three approaches (the pure economic, the socio-economic, and the sociological/

political). This is evident from a range of collective critical assessments published over a long period of time.[2]

Since the early 1960s, the Italian tradition has also come to be associated with the work of Giovanni Busino. His involvement with Pareto's legacy is unique. Pareto's thirty-volume *Oeuvres Complètes* was prepared and edited under his direction. He has edited volumes on Pareto, such as *Pareto Oggi* (Busino 1991), and he was the founding editor of the journal, the *Revue Européenne des Sciences Sociales,* which publishes widely on Pareto. Busino's most important (non-editorial) contribution is *L'ltalia di Vilfredo Pareto* (Busino 1989). This makes use of Pareto's vast correspondence to shed light on his work, his views on Italy, and the influence of (political and intellectual) events in Italy on Pareto's own intellectual development. In all these contexts, Busino emphasises the development of Pareto as a critic of social theories. A number of scholars are associated with Busino's approach.[3]

Busino's contribution to the literature on Pareto that has influenced the research goals of this study predates his *L'ltalia di Vilfredo Pareto.* This study does not systematically review Pareto's numerous articles and letters on Italian politics. Instead, his influence derives from his *Gli Studi su Vilfredo Pareto Oggi* (Busino 1974c), which reviews studies on Pareto over a range of chronological periods. One of these reviews concerned *Pareto's Methodological Approach to Economics* (Tarascio 1968), the book that lays the foundation for much of the socio-economic approach.

Busino takes issue with Tarascio's contention that "Pareto's methodological contribution to the theory of 'positive' policy has been overlooked" (Tarascio 1968, p. 55). He counters Tarascio's view with the observation that "it is not a mystery to anyone that Pareto thought it practically impossible for a scientist to elaborate a positive policy, even in the economic sector" (Busino 1974c, p. 223). Busino's underlying concern appears to relate to a perception that Tarascio does not take full account of Pareto's distinction between the scientific truth of a doctrine and its utility for society and, by implication, his philosophy of science.

Given the purpose of this research, the central thesis of the study clearly falls within the socio-economic approach that is associated with the work of Vincent Tarascio. The research goals are consistent with that approach because the question of methodology is central to the investigation, as is the rapport between pure economics and general sociology. However, the research goals have also been drafted so that the philosophical aspects of Pareto's methodology and the consequent limits for a positive approach to political conduct can be considered. In this regard, reference to "consideration of his [Pareto's] methodology" in research goal 1 is included to ensure that the philosophy of science that underlies Pareto's methodology is identified. Similarly, reference to "Pareto's methodological distinction between form and substance" has been included in research goal 4 to

ensure examination of the limits to a positive approach to politics under Pareto's methodology.

1.5 The structure of this research

The results of this study are presented in nine chapters.

Chapters 2, 3 and 4 relate to research goal 1. They establish the relationship between determinism and ideology in Pareto's work, after consideration of his methodology and his exposition of pure economics and general sociology in terms of an analogy with rational mechanics.

Chapter 2 reviews Pareto's methodology for the social sciences. It provides the framework for all issues considered in the thesis, but it is especially important for research goal 1. It primarily deals with Pareto's fundamental methodological issues. The contention that the physical/mathe-matical sciences provide a good methodological model for the social sciences is examined. The distinction between fact and theory and the necessity of using successive theoretical approximations to develop an appreciation of concrete phenomena is discussed, and the characteristics of Pareto's approach to scientific propositions are established. Adjustments to methodology to facilitate an examination of non-logical social conduct are also identified.

Based on a review of Pareto's multidisciplinary methodology, it is suggested that his approach to theory reflects a philosophy of science where the objective of social science is to identify generalities, whereas an appreciation of concrete social facts requires synthesis of generalities from various scientific disciplines. In this context, the importance of synthetic resolution of 'interferences' between the laws of various social disciplines is considerable.

The first step in the breakthrough in formulating this methodology was Pareto's introduction of a distinction between the 'substance' and the 'form' of social phenomena, and the related analytical division between logical conduct and non-logical conduct. Logical conduct relates to the circumstance where the expected benefit of conduct would be realised, and non-logical conduct concerns the case where the expected benefit of conduct would not be realised (or it cannot be realised because the subjective intent has no objective end). The next important step in formulating this methodology was the consideration of social phenomena in terms of three different aspects:

(i) the objective aspect
(ii) the subjective aspect
(iii) the aspect of utility

In brief, the chapter is concerned with the methodological foundations for timeless theoretical propositions for logical and non-logical conduct, and the relationship between such propositions and concrete social facts.

Chapter 3 shifts focus from methodology to method, where method is defined as the analytical elements of theory developed in conformity with the general methodological framework. These abstract analytical elements

constitute the basis of the mechanical analogy that underlies Pareto's pure economics and general sociology. The abstract analytical elements are *'homo œconomicus'* in economics, and 'residues', 'derivations', 'interests' and 'elites' in sociology. They are considered in Chapter 3 in order to examine the rapport between Pareto's pure economics and general sociology.

The evolution of Pareto's notion of *homo œconomicus* is examined, focusing on changes from the *Cours* to the *Trattato,* and comparing it to Sen's 'rational fool' (Sen 1982). It is suggested that Pareto's *homo œconomicus* was the dominant abstraction in Pareto's early economic theory. However, as his approach to economic theory matured, the dominance of *homo œconomicus* over other abstractions ceased. Coincident with this was his de-emphasis on ophelimity and the increased influence of the 'fact of choice' associated with Pareto's introduction of ordinalism to pure economic theory. The combination of these two factors resulted in Pareto coming to view policy development as requiring a synthesis of (largely deductive) economic theory and (largely inductive) sociological theory.

Chapter 4 develops the issue of Pareto's mechanical analogy further, by examining some erroneous interpretations that have resulted from considering the economic elements of the analogy in isolation from the sociological elements of the analogy. The focus of such critiques has been on the unsustainable determinism of Pareto's economic equilibrium (Stark 1965; Mirowski 1989) and the ideological bias in Pareto's general equilibrium economics (Dobb 1973).

The Stark/Mirowski critique of Pareto is examined and found to be deficient because it does not recognise Pareto's methodological approach to the social sciences. The limits of Pareto's mechanical analogy are relatively explicit. Physics was used as an imperfect analogy and never presented as a metaphor for economics, as Mirowski suggests it was. Notwithstanding Pareto's imperfect grasp of the mathematical implications of integrability, his deliberate reduction in the scope of pure economics ensures that Pareto's indices of ophelimity effectively represent a conserved economic utility field.

Dobb's suggestion that Pareto's general equilibrium approach is crudely one-sided is examined, and it is found that Dobb did not attempt to adequately account for Pareto's contention that ophelimity has a role in the development of hypotheses, but as such it is subordinate to facts. Dobb also assesses Pareto's approach to economic theory in relation to cause and effect and to the 'economic application' this suggests. This ignores Pareto's distinction between fact and theory, and his insistence that economic facts and applications require a synthesis of pure and applied theory from economics and sociology.

It is suggested that studies, such as those undertaken by Mirowski and Dobb, which do not differentiate Pareto's multidiscipline methodology from a generic neoclassical methodology, will almost invariably misrepresent Pareto's work and lead to misconceived critiques.

Chapter 5 relates to research goal 2. It reviews the development of Pareto's application of pure economic theory to the analysis of collective economic welfare. The examination of collective economic welfare in this chapter is limited to narrow economic matters related to ophelimity and indices of ophelimity. It does not extend to broader matters of utility. It attempts to develop John Chipman's (1976) major examination of this subject by placing the issue within the context and constraints of timeless, highly deterministic economic theory (as discussed in Chapters 2, 3 and 4).

Pareto's first investigation of collective economic welfare is contained in his 1894 article, "II Massimo di Utilità dato dalla Libera Concorrenza". This article is discussed, and the subsequent Scorza/Pareto polemic is examined, from three distinct perspectives. An interpretation of the polemic based on the sociology of knowledge implicit in Pareto's theory of elites is developed. A methodological interpretation of the polemic is also undertaken, which suggests that the core of Scorza's critique is a concern over the timelessness of general equilibrium theory. Finally, Chipman's evaluation of the polemic is critically interpreted.

Claims that Scorza's influence on Pareto's publications after the polemic was significant and unacknowledged are examined, and found to be much exaggerated. This is because Pareto continued to consider the question of economic efficiency in a timeless way after the polemic. In the light of this (and related factors), Chipman's contention that Pareto eventually sided with Scorza cannot be sustained. Gattei and Guerraggio (1991) also argue that Pareto's specification of economic maximum in local rather than global terms is directly attributable to Scorza's influence. However, it is shown that Pareto's local specification of his efficiency criteria has less to do with issues raised by Scorza than with Pareto's mathematical errors, and the constraints of reconciling his 'mathematical' approach to collective economic maximisation with his 'economic' approach.

Chapters 6 and 7 relate to research goal 3. They compare and contrast methodological features of Pareto's political sociology with:

(i) Buchanan's 'economic' approach to politics; and
(ii) the analysis of 'irreducibly social' goods, the economic analysis of 'merit' goods and the political modification of preferences.

Chapter 6 compares the analytical framework developed by Vilfredo Pareto in *Les Systèmes Socialistes* with the constitutive elements of economic policy specified by James Buchanan (1987) in his *The Constitution of Economic Policy*. This is a necessary chapter for a number of reasons. The *Systèmes* is Pareto's first detailed and theoretical study of the political process. Since the purpose of the present study is to apply theory to the political process, the inclusion of a discussion of the *Systèmes* is essential. This should partially redress the lack of interest in the *Systèmes* in the English-language literature. There are also

compelling similarities between aspects of the *Systèmes* and Buchanan's approach that, once identified, prove useful in the study of 'public policy' outlined in Chapter 8. Finally, notwithstanding Pareto's extensive reference to social selection processes, and that his analysis of political elites is undertaken within a selection framework, the *Systèmes* also introduces the distinction between 'substance' and 'form', where 'substantive' matters are considered as non-enduring, but general and recurring uniformities. This was an important step, as it permitted the mechanical analogy to be extended to incorporate unstable relations between utility and social change in a political context.

In relation to positive issues, both approaches (Pareto's and Buchanan's) are, to varying degrees, grounded in methodological individualism, with economic interest a factor in determining actions within political environments. The major differences between the two derive from the fact that the *Systèmes* accounts for the influence of feeling and sentiment on actions, whereas Buchanan, while acknowledging non-economic influences on actions, implicitly assumes that human motivation is unchanged. Pareto studies general or overarching regularities that are independent of institutional arrangements. In contrast, Buchanan advocates analysis of very specific institutional arrangements. However, the positive bases of these two approaches are not essentially inconsistent.

The differences between Pareto's and Buchanan's approaches become more marked when normative issues are considered. The *Systèmes* addresses realisable outcomes and considers whether they would improve social well-being. Buchanan, however, remains firmly within the individualistic framework. His focus is not on outcomes, but on the rules that establish the institutional framework within which individuals make decisions to achieve outcomes.

Chapter 7 considers the limits of consumer sovereignty for public policy purposes, as raised in *Rationality, Individualism and Public Policy* (Brennan and Walsh 1990), in the light of Pareto's theory of non-logical actions as outlined in the *Trattato*. The chapter is important to the goals of this study because it shows that progress in the study of public policy and non-logical conduct has only been moderate since Pareto addressed the subject, and also because it clarifies general sociological aspects of Pareto's work that are used in Chapter 8.

It is found that the critique of atomism associated with the notion of 'irreducibly social' goods (whose benefits cannot be fully appropriated by the individuals who consume such goods) does not extend to Pareto's theory of social utility.

In relation to the study of irrational behaviour, Pareto's contributions (such as his utility theory of tutelage in the *Cours)* are significant and more concisely expressed than the investigation of irrational behaviour associated with merit goods. In relation to non-logical behaviour, it is suggested that Pareto's theory of derivations and social utility (including Pareto's economic and sociological approaches to

welfare maximisation) provides a firmer basis for considering preference manipulation than an analysis based on the vague concept of merit goods.

Paretian sociology is also used to isolate the non-logical elements of theory. These include:

(i) relying on hypothetical constitutional periods to establish rules to override consumer sovereignty; and
(ii) the quasi-public choice proposition that reflective preferences revealed in the ballot box may reveal truer value-based preferences than action revealed in markets.

Chapter 8 relates to research goal 4. It employs Pareto's distinction between form and substance to develop a timeless and synthetic 'successive approximations' approach to interpreting the processes of 'government' and 'public policy'. Chapter 8 is the culmination of this research, and draws heavily on issues raised in all of the earlier chapters. It builds on Pareto's methodological foundations outlined in Chapter 2, the mechanical analogy and issues of stability associated with the mechanical analogy (Chapters 3 and 4), economic and sociological maxima in Chapters 5 and 7, and the analysis of elites in Chapter 6.

The starting point is Samuels' (1974) benchmark study entitled *Pareto on Policy*. This study considers Pareto's sociological categories in terms of psychology, power and knowledge, and finds that under Pareto's system, *freedom* is associated with *change,* while issues of *control* are associated with *continuity*. However, in Chapter 8 of the present study a more conventional Paretian perspective is adopted, with the 'substantive' aspects of the political activity differentiated from the 'form' of political activity. Furthermore, the process of government is differentiated from the public policy process for analytical purposes. The former is primarily concerned with the power equilibrium; the latter concerned with the policy outcome in isolation from the struggle for power (when the power equilibrium is stable).

Consideration of governmental matters associated with the pursuit of political authority is primarily based on Pareto's sociological analysis. 'Substantive' governmental matters concern the balance achieved in the collective between conformity (where 'state's rights' are emphasised) and non-conformity (where 'individual's rights' are emphasised). Issues concerning the 'form' of the social order and its relation to the authority of government relate to the precise social arrangements prevailing in a collective. Change in the 'form' of the social order without noticeably altering the substantial balance between conformity and non-conformity prevailing in society, is presented as a change in the form of the collective. Change in the balance between conformity and non-conformity in the collective is presented as substantial change.

Examination of public policy utilises the deductive elements of sociological and economic welfare of the collective outlined in Chapters 5 and 7. Consideration is

given to stability of the means/ends relationship in the policy process, and the sub-global application of Pareto theorems of economic and sociological maximisation.

The purpose of Chapter 8 is to synthetically unite the 'government' and 'public policy' approximations, and in doing so makes two contributions to the literature on Pareto.

First, it clarifies the circumstances when Samuels' association of freedom with change and his association of control with continuity in Pareto's system hold. It is shown to be a reasonable approximation to analysis of the 'form' of government and associated policy, but not to apply to 'substantive' change. Second, the normative assumptions underlying 'government' level analysis and 'policy' level analysis are found to be distinct. At the 'government level', extremes should be avoided because they *reduce social utility*. At the 'public policy' level, the normative goal is to *maximise social utility* subject to government-level arrangements (in the generally prevailing social order). The difference reflects Pareto's acute awareness of the objective limits of his methodological approach to social science.

Chapter 9 contains the conclusions.

1.6 Conclusion

Pareto's application of the mechanical analogy to the development of pure economics resulted in a timeless (though technically incomplete) theoretical approach to the study of economic conditions, associated with a stable and enduring relationship between ophelimity and conduct. His application of the mechanical analogy to the development of general sociology resulted in a timeless theoretical approach to social (including economic) conditions, associated with a potentially unstable and non-enduring utility function. When pure economics and general sociology are considered together, they are found to be well suited to a synthetic analysis of government and public policy (and the stable and unstable conduct associated with political activity).

It should, however, be stressed that the findings of this research do not suggest that the dynamic treatment of government and public policy have no place in social theory. The progression from timeless theory to dynamic theory is outside the scope of the study. Notwithstanding Pareto's extensive use of induction in the development of sociological theory, supported by numerous historical illustrations, no comments about the relevance of Pareto's theory to the fundamentals of dynamic theory can be inferred from this study.

Appendix 1.1

Pure economic studies of Pareto's work

The law of demand

1 Pareto's rejection of Marshall's assumption that the marginal utility of money is constant (Wilson 1935; 1943; Chipman 1976)

Equilibrium and value

1 The evolution of Pareto's theory of ophelimity towards a pure exchange approach to value (Georgescu-Roegen 1935; 1975)
2 Ordinal value theory (Hicks 1934)
3 Pareto's and Slutsky's respective contributions to the 'fundamental equation of values' (Dooley 1983)
4 General equilibrium theory (Ricci 1933; Cirillo 1979)
5 The existence, stability and measurement of economic utility (Volterra 1971; Chipman 1971; Georgescu-Roegen 1975)

The mechanical analogy

1 Integrability and path-independence (Mirowshi 1989)
2 Relevance for a 'dynamic' expression of economics (Donzelli 1997)

The welfare function

1 Pareto's study of welfare was considered by Abram Bergson when developing the social welfare function (Bergson 1938). However, there is some disagreement as to whether the social welfare function was first introduced by Pareto (1980k) in 1913 (Tarascio 1968, pp. 81–83; Georgescu-Roegen 1975; Chipman 1976, p. 67; Samuelson 1986; Bergson 1983; Seidl and Schmidt 1999)

Welfare economics

1 J.R.Hick's use of Pareto's ordinal indices of ophelimity to develop new welfare economics (Hicks 1939)
2 The development of Pareto's analysis of collective economic welfare (Montesano 1991; 1997a; Chipman 1976)
3 The relationship between Pareto and contemporary welfare economics (Cirillo 1973)
4 The relevance of the *Cours* to welfare analysis (Scarpparone 1997)
5 The polemic between Pareto and Scorza on the proposition that equilibrium under free competition is Pareto optimal (Chipman 1976, p. 67; Gattei and Guerraggio 1991)

Production theory

The debate between J.R.Hicks and Henry Schultz over Pareto's rejection of first-degree homogeneous production functions because of fixed factor proportions and specialised intermediate goods (Schultz 1929; Hicks 1932a; Schultz 1932; Hicks 1932a)
2 Reconciliation of Pareto's work on production with the Walrasian approach (Neisser 1940)

Appendix 1.2

Socio-economic studies of Pareto's work

Methodology

1 Comptean aspects of Pareto's approach to science and the pursuit of 'ethical neutrality' (Tarascio 1968)
2 The relationship between ophelimity (economic utility) and utility (Tarascio 1968; 1969)
3 The limits of 'the rational mechanics' and *'homo œconomicus'* in the study of economics (Ingrao and Isreal 1990)
4 The evolution of Pareto's approach to science (Tarascio 1976; Marchionatti and Gambino 1997)
5 The relative importance of deductive and inductive techniques in Pareto's economics and sociology (Lombardini 1991; Bridel 1991; Morishima 1994)
6 Pareto's methodology compared to Léon Walras (Schumpeter 1954; Misaki 1999; Mornati 1999; Marchionatti 1999; Tarascio 1999; Legris and Ragni 1999)

Collective sociological welfare

1 The relationship between economic welfare of the individual and the collective, and collective sociological welfare (Allais 1968; Tarascio 1969; Tarascio 1993)
2 Welfare theory in the context of the political economy of patron-client relationships between elites (Tarascio 1974)

Broad economics

1 The relationship between logical and non-logical conduct in the field of economic affairs (Amoroso 1938; Spirito 1978; Tarascio 1974; Morishima 1994)
2 The relevance of the *Trattato* to the study of economic phemonena (Tarascio 1983; Schumpeter 1949)
3 Pareto's economic and sociological contribution compared to other major figures in economic history renowned for their broad approach to economic matters, such as Keynes (Tarascio 1969b), Marx (Tarascio 1972b) and Veblen (Bhatty 1954)

Policy, public finance and government

1 Reworking the *Trattato* into a positive theory of economic policy and general policy (Samuels 1974)

2 Public finance aspects of Pareto's sociology (Fasiani 1949; Tarascio 1974)
3 The apparent conflicts between Pareto's economic theory and understanding of political and economic phenomenon (Cardini 1997)
4 The formation and development of Pareto's early economic ideas, including the social and political context within which they developed (Mornati 1997a; Zanni 1999)

Appendix 1.3

Sociological/political studies of Pareto's work

Evolution of Pareto's ideas and theory

1 Pareto as a precursor of fascism (Borkenau 1936)
2 Biographical notes highlighting Pareto's personality (Bousquet 1961)
3 The disillusioned liberal (Bellamy 1990)
4 The evolution of Paretian economic and social theory (Finer 1966)
5 Pareto's theory as a study of social 'systems' (Parsons 1968; Pollini 1999; Aqueci 1999)

Pareto's methodology

1 The role of synthetis in Pareto's 'scientific' methodology (Federici 1999)
2 The individual and the social (Maniscalco 1994; Aqueci 1999).

Politics and elites

1 Demagogic plutocracy (Femia 1995; Finer 1968; 1975; Borkenau 1936)
2 Pareto and Gaetano Mosca (Meisel 1965)
3 The new contributions to social theory in Pareto's *Trasformazione della Democrazia* (Powers 1987; Romans 1986; Crippens 1990)
4 The forms of spoliation (Maniscalco 1994)

Time and fundamentals

1 Pareto's sociology as essentially timeless (Stark 1965)
2 The relationship between equilibrium and dynamic social processes (Maniscalco 1999)
3 Pareto's foundation for analysis of interactions between economic and sociological cycles (Powers 1984; 1987) and/or the study of social evolution (Houghton and Lopreato 1977), even providing a socio-biological basis for the evolutionary interpretation of society (Lopreato 1980)

Pareto's reception and influence in English-speaking countries

1 The response of English language critics (such as Franz Borkenau, Samuel Finer, Ronald Fletcher and Morris Ginsberg) to the *Trattato* (Lane 1978)
2 Pareto's influence on American sociology, especially on the functionalist approach to sociology generally, his direct influence on Talcott Parsons, George C.Romans, Robert K.Merton and C.Wright Mills, as well as his indirect influences on sociological theory (Lopreato and Rusher 1983)

2 Methodology

2.1 Introduction

Pareto's first notable work to consider the issue of methodology in the social sciences was "Dalla Logica delle Nuove Scuole Economiche" (On the Logic of the New Economic Schools), originally published in June 1877 (Pareto 1980a). Following his change to an academic career in 1893, he wrote several further works that emphasised the importance of methodology for the study of social conduct. Important contributions to methodology in the social sciences were made over many years and are included in a number of Pareto's articles and books.[1]

In an important study of Pareto's methodology in economics, Tarascio (1968) makes the distinction between methodology and method. For the purposes of this thesis, a similar distinction is made. Methodology is interpreted as the set of principles that define 'science' as it relates to the study of social phenomena. Method constitutes the particular instruments of theoretical analysis that Pareto developed in economics and sociology, using his analogy with the science of mechanics.

This distinction is not only useful for expository purposes, but it also facilitates an appreciation of the rapport between Pareto's economics and his sociology. Failure to recognise it has resulted in misleading interpretations of Pareto's pure economic theory (see Chapter 4).

The goal of this chapter is modest. It identifies the philosophy of science implicit in Pareto's methodology, which was developed in order to eliminate metaphysical premises from the social sciences. Methodology is such a fundamental aspect of Pareto's work that it must be considered in *socioeconomic* studies. It is methodology that determines the directions of developments in pure theory, and the consequent relationship between pure theory and concrete phenomena. The issues raised in this chapter provide the context for subsequent chapters, especially Chapter 3, where the elements of Pareto's method are examined, and Chapter 4, where the mechanical analogy is examined in some detail.

This goal could be pursued in its historical context by examining the works on methodology that Pareto studied in his formative academic years as a science/engineering student at the University of Turin, followed by an

examination of Pareto's own writings on methodology. Unfortunately, there is little or no information available on the methodological content of Pareto's early courses of study.[2] As a result, this chapter is limited to a study of Pareto's own writings on methodology.

The outline of the chapter is as follows. The methodological lessons that Pareto took from the physical sciences are outlined in Section 2.2, focusing on the relationship between theory and fact, and on the principle of successive approximations. Scientific propositions in relation to social conduct are reviewed in Section 2.3, where descriptive and hypothetical propositions are discussed in the context of general and special research. Aspects of methodology specific to the study of non-logical action are raised in Section 2.4. Some critical assessments of Pareto's methodology are introduced in Section 2.5, with consideration given to hidden assumptions, progress and nonlogical conduct, high levels of abstraction and timelessness. The conclusion is contained in Section 2.6.

2.2 Methodological lessons from the physical sciences

When Pareto wrote "Dalla Logica delle Nuove Scuole Economiche" in 1877 he was a twenty-eight-year-old engineer/manager. Although it would be another thirteen years before he 'retired' and devoted himself to serious study of economics, many of the fundamental aspects of his methodology are already evident from this article. These include the focus on 'laws' or regularities and the need for theoretical developments to be based on abstractions whose results are confirmed by observation. The article also highlights Pareto's commitment to the multidisciplinary approach to social theory, and the view that when policy principles are derived from political economy it should be done in a broad context that also involves consideration of theories of social evolution.

In "Dalla Logica delle Nuove Scuole Economiche", Pareto acknowledges Comte for his emphasis on the primacy of observation.[3] However, he is also critical of Comte for his misguided critique of political economy.[4] Pareto endorsed the development of scientific disciplines within the social sciences. From this starting point, it emerged in Pareto's major theoretical writings that the lessons of the physical-mathematical sciences provide the fundamental methodological lessons for the scientific study of social conduct.

By the time Pareto wrote the *Cours,* his conception of methodology had developed to the extent that Walras' method (his analysis of general equilibrium) was accommodated within the social sciences in a manner consistent with procedures employed in the physical-mathematical sciences. While there is no doubt Pareto's methodology and method evolved as his treatment of 'sentiment' progressively developed into the formal division between logical and non-logical conduct, it is equally certain that it was the

methodology enunciated in the *Cours* that provided the basis for future developments.

The purpose of this section is to identify the methodological elements derived from practices in the physical-mathematical sciences that Pareto applied, with minor modification, from the *Cours* until after the *Trattato*.

In the chapter of the *Cours* entitled the "Economic organism", the social (economic and non-economic) characteristics of humankind are noted. Studies of each of these characteristics in the context of law, religion, social organisation, etc. is said to constitute the social sciences. To emphasise the relationship between economics and other fields of social investigation, Pareto introduces an analogy with the relationship between mechanics and the physical-chemical sciences. Mechanics is represented by Pareto as the study of one of the properties studied by the physical-chemical sciences; other properties are examined by the study of light, electricity, heat, chemistry, and thermodynamics (Pareto 1971a, p. 645).[5] This analogy has the following implications for Pareto's methodology for the study of society:

1 Concrete phenomena are reduced to their component elements, which are the subject of study by different scientific disciplines.
2 Phenomena studied within disciplines are also divided, first into primary phenomena and then into secondary phenomena. The primary phenomena are simply the subject matter that researchers choose to study by developing models of pure theory, and pure theory is only a first approximation to the primary phenomena. Secondary phenomena are real factors that may directly or indirectly impact on the primary phenomena, but which are not included within the scope of pure theory developed within a discipline. The secondary phenomena are examined in applied research.
3 Observed 'general uniformities' associated with past human actions constitute social laws; and because they are general in scope, they can be expected to continue even when specific social circumstances change.
4 The only adjudicator of the scientific merit of laws of human action is experience.

While controlled experiments are largely beyond the scope of the social sciences, Pareto did not regard this as inconsistent with the methodology of the physical-mathematical sciences. At the broadest level, controlled experimentation is simply a particular type of observation. Moreover, controlled experiments are not necessarily a feature of all physical sciences, e.g. studies in celestial mechanics designed to model the movement of heavenly bodies cannot conduct controlled experiments (Pareto 1935, p. 53).

One critical consequence of the above points is that pure theory generally uses abstract notions based on hypothetical premises to facilitate the study of a 'slice' of, or a perspective on, the concrete social phenomenon.

Consequently, an appreciation of the real phenomenon, in its totality, requires a synthetic union of the various slices of the phenomenon being studied. As Federici (1999, p. 219) notes, there is a 'synthetic tendency' in Pareto's methodology. This is made abundantly clear by Pareto in the methodological discussions included in his 1899 "I Problemi della Sociologia".

> An accumulation of materials is not a house; but without materials, how can one construct a house?…
>
> There does not exist, there will never exist, a theory whose internal premises represent facts. The premises of all theories were, are and will be necessary abstractions of certain characteristics of facts, in order to study these characteristics separately from others. This is because the human mind cannot embrace every complexity of a selected real fact in one treatment, even for the most simple of facts. It is therefore good that every theory moving from an imperfect premise is necessarily imperfect; not because one must reject it, but because one must complement it with other theories…
>
> A law that permits exceptions is not a law because a law is simply a uniformity, and a non-uniform uniformity is logically inconceivable. The facts that [some] good gentlemen call exceptions are interferences[6] between the various laws, the effects of which combine in a practical case.
>
> (Pareto 1980d, pp. 168–69)

A consequence of the arbitrary slicing of a concrete phenomenon into various disciplines is that a clear definition of the phenomenon studied becomes vague. In a letter to Benedetto Croce, Pareto suggested that "I do not believe that there is objectively an economic phenomenon…. For me it is only a manmade distinction" (Pareto 1982g, p. 444).[7] He went on to conclude that "It seems to me that we must resign ourselves to talk about economics as we talk about other sciences, that is to say without being able strictly to fix its boundaries" (Pareto 1982g, p. 446).[8] This applies equally to sociology, as Pareto makes the same points in the second paragraph of the *Trattato* (Pareto 1935, p. 3) where he discusses his definition of sociology.[9]

A logical consequence of applying the methodology of the physical sciences to the social sciences, and the associated arbitrary divisions that separate the various disciplines of the social sciences, is Pareto's method of synthesis by successive approximations. This method involves the development of a critical understanding of economic and social reality by recourse to a series of disciplines, each of which, in sequence, is more specific than its predecessor. And within each discipline, there is also a sequence of approximations from the most general (pure theory) to the more specific (applied research). As noted in the *Cours:*

> Considerations on the theme of *successive approximations*…are familiar to all people who have studied physical-mathematical sciences. They are fundamental and absolutely essential for the study which we are undertaking.
>
> (Pareto 1971a, p. 142)

In brief, there are two related types of successive approximations, one applying between disciplines (point 1) and another applying within disciplines (point 2). Successive approximations also provide the context for considering scientific developments over time (point 3), and for considering problems of verification (point 4).

Pareto's example of successive approximations between disciplines in the *Cours* (Pareto 1971a, p. 141) concerns the physical sciences, where a researcher is interested in the form of the earth. Astronomy provides the first approximation, through its confirmation that the earth is spherical. Geography provides a second approximation, with its explanation of the formation of mountains, rivers, and the abyss of the oceans. A third approximation is provided by topology, which reveals hills and brooks and more localised features of the landscape.

Pareto's within-discipline example of successive approximations (Pareto 1971a, p. 141) concerns the distinction between pure economic theory and applied economics. Pure economic theory provides the generalisations which are then given context by theory developed from applied economics. Pareto was severe in his criticism of theorists who failed to appreciate this, and as time went by his criticisms became bitter and sarcastic.

> In political economy itself, the theories of pure or mathematical economics have to be supplemented—not replaced—by the theories of applied economics…
>
> Straightway one of those numberless unfortunates who are cursed with the mania for talking about things they do not understand comes forward with a discovery—lo the wonders of genius!—that pure economics is not applied economics, and concludes, not that something must be added to pure economics if we are to understand the concrete phenomena, but that pure economics must be replaced by his gabble…
>
> And lo, another prodigious genius, who holds that because many economic phenomena depend on the human will,[10] economics must be replaced by psychology.
>
> (Pareto 1935, p. 20)

The notion of successive approximations can also be applied to the accumulation of scientific knowledge. Social laws may evolve from their initial specification as our understanding of general phenomena progressively becomes a closer approximation to the concrete phenomena. Consequently, laws are not iron laws, they are simply hypotheses that explain a range of

social facts at a general level, and are modified (or replaced) as science increases understanding.

While this is implicit in much of Pareto's work, it is made explicit in his letter to Croce, where he talks of science proceeding along an "objective path" (Pareto 1982g, p. 447). He also notes in "L'Economia e la Sociologia dal Punto di Vista Scientifico" that science is in perpetual development (Pareto 1980i, p. 338). The clearest expression of this position is in Pareto's address to his silver jubilee celebration at the University of Lausanne, when he paid homage to Léon Walras and noted that:

> Experimental science is in perpetual development. It is similar to a river that runs constantly, but which will transform itself into a swamp if its waters become stagnant. One does not find the life of science in dogmatic immobility but in the movement of experience. Every experimental science is, in large part, the fruit of the work of the past and the germ of work to come, and its merit is relative to the time in which it is born.
>
> (Pareto 1980l, p. 689)

This explains why Pareto progressively increased his emphasis on the 'relative' nature of developments in scientific hypotheses. In the *Trattato,* social laws are established *"within the limits of the time and experience known to us"* (Pareto 1935, p. 35). Laws are certainly not absolute truths; they are relative and retained only until more general and more accurate laws replace them.

This presents a problem for verification. In the *Cours,* Pareto laid the foundation for multidisciplinary studies and was no doubt aware of the potential problems for verification. Nevertheless, he chose not to emphasise them, especially in the preface, where it is noted that a theory is judged directly in relation to observable facts:

> Every theory that explains known facts and provides for new facts to be anticipated can be accepted, at least in a provisional way; every theory that is contrary to the facts must be relentlessly rejected.
>
> We have made every effort possible never to depart from this rule, which all the natural sciences have adopted.
>
> (Pareto 1949a, p. vi)[11]

This was followed by discussion of the respective roles of deduction and induction in the "New Theories of Economics". In it he notes, all

> the conclusions to which deductive studies founded on the general equations of economic equilibrium can lead us must be verified by a careful scrutiny of facts, both present and past—that is to say, by statistics, by close observation, and by the evidence of history.
>
> (Pareto 1897, p. 500)

However, as noted earlier, only a few years later in 1899 Pareto was stressing the importance of 'interferences' between laws. This poses obvious difficulties for empirical verification. Progressively this was given more prominence, until the *Trattato,* where Pareto again warns of "superposition of the effects of other laws on its own normal effects" (Pareto 1935, p. 53).

After bringing these interferences to notice, Pareto's position on the role of deduction and induction started to change. He advanced the view that a theorist need not be restricted to using deduction in the development of pure theory, and that induction need not be restricted to the role of verification. In the *Manuale,* Pareto went so far as to embrace a pluralism of method (but not methodology) used to develop economic theory:

> Disputes about the 'method' of political economy are useless. The goal of the science is to know the uniformities of phenomena. Consequently, it is necessary to employ all procedures and utilise all methods which lead us towards that goal. The good and the bad methods are discovered by trial. One which leads us to the goal is good—at least as long as a better one has not been found. History is useful in that it extends the experience of the past into the present and supplies experiments which we are unable to make; hence the historical method is good. But the deductive method, or the inductive method which is applied to present facts, is no less worthy. Where ordinary logic is adequate in deductions we are satisfied with it; where it is not we replace it, without qualms, by the mathematical method.
>
> (Pareto 1971c, pp. 18–19)

The implication here is that after the *Cours,* the distinction between the development of theory and verification is less rigid. Observed facts could be used to identify regularities from which deductions could be made and synthesis derived. This marks a change in emphasis. In the *Cours,* verification is implicitly considered after the development of theory, whereas in the *Manuale* verification by experimental observations occurs contemporaneously to complement the development of theory. This is reflected in Pareto's emphasis on the 'fact of choice' (or experimental observation) ahead of using hypotheses based on ophelimity as a measurable quantity, as noted in his letters to Croce (Pareto 1953a, p. 188). This is discussed further in Chapter 3. In his sociology this point is given even greater emphasis, with experimental methodology re-named the logico-experimental (i.e. deductive-inductive) approach.

Associated with the evolution of Pareto's methodology into the logicoexperimental approach and the consequent de-emphasis on ex-post verification of theory, is an increased emphasis on synthesis (provided that induction has been used in an earlier stage of the development of theory). To further clarify the relationship between interferences, laws and synthesis, Pareto placed greater emphasis on his proposition that uniformities of scientific

interest are not dependent on the social 'form' within which they are exhibited. This has implications for the meaning of scientific propositions about social phenomena.

2.3 Scientific propositions about social phenomena

Pareto devoted considerable attention to the types of proposition concerning social phenomena that are scientific. In his article "New Theories of Economics", Pareto (1897, pp. 488–90) suggests that economics and social sciences study social movement, and that this is studied in two ways. First, by descriptive propositions where actual events are considered in reference to time and place. These studies are generally undertaken by the 'historical' school in political economy and by students of social evolution. Second, propositions about potential social movements that reflect hypothetical propositions under prescribed conditions, such as the development and application of pure economic theory to the study of human welfare.

To clarify the meaning of hypothetical propositions in science, Pareto invoked an analogy with rational mechanics to describe movements as either 'real' or 'virtual' (Pareto 1897, p. 489). Hypothetical propositions are based on theory which approximates real movements. They also enable examination of 'virtual movements', or changes that could be realised given the bonds and interrelations identified under pure and applied theoretical studies of real movements. This mechanical analogy became a cornerstone of Pareto's subsequent methodological expositions, with real and virtual movements discussed in "I Problemi della Sociologia" (Pareto 1980d, p. 166), the *Systèmes* (Pareto 1974b, pp. 186–88), the *Manuale* (Pareto 1974c, p. 111) and the *Trattato* (Pareto 1935, pp. 67–71).[12]

However, the theoretical propositions derived from the study of real movements are, as noted in Section 2.2, only general. As his interests turned to sociology, Pareto spent some time defining what he meant by a general uniformity. Its meaning became rooted in the differentiation between form and substance[13] of social evolution, as discussed in the *Systèmes* (Pareto 1974b, pp. 150, 168), and was extended in the *Trattato* to reflect the distinction between 'special' and 'general' sociologies (Pareto 1935, p. 1467).

A 'special sociology' examines the "particular forms of various social phenomena" (Pareto 1935, p. 13). In contrast, general sociology is concerned with the substantive matters that influence all forms of society. The *Trattato* is, as the name clearly states, a treatise on general sociology.

It is the goal of general sociology, and therefore the primary goal of the *Trattato,* to determine general uniformities revealed through (European) history, i.e. social laws. The task of a special sociology is to use the laws of general sociology to consider concrete circumstances, such as the work undertaken by Pareto in his post-*Trattato* publications, notably *Fatti e Teorie* (Pareto 1980m) and *La Trasformazione della Democrazia* (Pareto 1984).

The form/substance distinction is also used by Pareto in another context. The *Systèmes* (Pareto 1974b, pp. 229–30) refers to the finding that some basic sentiments persist over time, while the form in which they are expressed may be extremely variable. That is, Pareto regards the substantive or constant inspiration for human action as sentiment, where action inspired by sentiment displays variable characteristics that may be classed as the form of human action. When the implication of this example is followed through to theory, general uniformities will exhibit various forms, but a common substantive uniformity underlies these forms. Giovanni Busino explained and illustrated this relationship in reference to economics, by suggesting that the 'form' of the Pareto distribution concerns the pattern of income distribution. However, the substantive element underlying the distribution is the proposition that income is distributed unequally, regardless of the social form that the collective takes (Busino 1996, p. 10).

One consequence of Pareto's emphasis on substantive features of social conduct and his de-emphasis of matters associated with the particular form of various social phenomena, is that his methodology cannot be considered a positivist model. Notwithstanding Pareto's emphasis on the relationship between fact and theory, recognition of interferences associated with variations between different general, but relative, uniformities in conjunction with variations attributable to social forms are not fundamental features of positivism.[14] While Pareto professed that he had no philosophic concerns, he continually operated with philosophic categories like the distinction between form and substance (Freund 1976, pp. 191–92).

Of course Pareto's implicit use of philosophic categories must be viewed in relation to his aspirations for science. His goals for the breadth of social laws were undeniably ambitious (general laws that apply across forms of society). However, his de-emphasis of social form reflects a perception that the depth of knowledge of human conduct revealed in the social sciences was not profound enough for matters of form to be incorporated in theoretical propositions. Dino Fiorot notes perceptively that a risk associated with Pareto's methodology is that social facts may be considered superficially because of the focus on general uniformities (Fiorot 1994, p. 68).

2.4 The study of non-logical conduct

'Religious creeds'

Section 2.2 dealt with general methodological aspects of Pareto's work that are largely consistent with the methodology of the physical sciences. Section 2.3 examined the philosophic propositions important for hypothetical propositions about social phenomena. The blending of these two features enabled Pareto to account for differences between physical phenomenon and social phenomenon. There was no retreat from the view that "sentiment

must remain extraneous from science" (Pareto 1974b p. 125); he remained committed to what Tarascio (1968, p. 5) refers to as "ethical neutrality" in science. It is just that Pareto's methodology recognises that human conduct is anything but ethically neutral, and that the influence of sentiment on conduct can be scientifically examined.

At the outset of his career, Pareto was a relentless and consistent opponent of metaphysics in the social sciences. In the *Cours,* hypothetical deductions based on *a priori* principles are said to reflect the 'metaphysical method' (Pareto 1971a, pp. 633–34). An hypothesis under the metaphysical approach is validated by the unobservable *a priori* value propositions reflected in human sentiment used to create the hypothesis, not by the relationship between the hypothesis and facts.

However, the very existence of a metaphysical approach raised questions about the limits to which people could act on the basis of reason in isolation from feeling or sentiment. Consideration of this matter developed considerably after the *Cours*. In an open letter to Benedetto Croce in 1900, Pareto follows his observation that we cannot strictly fix the boundaries of economics (as discussed in Section 2.2) with the cautious note:

> At this point, by going a step further, we enter a subject in which I proceed with uncertainty, trying to find my way.
>
> Many authors, nearly all those who have studied sociological phenomena, have seen that in man's actions feelings play the greater part and reason the lesser. The same fact can be expressed in another way, by saying that non-logical actions are many and important…
>
> I consider that non-logical actions are very numerous in choices.
>
> (Pareto 1953a, pp. 195–96)

We have here the basis of what Pareto was to develop into the defining characteristic of his research, namely the distinction between logical and non-logical conduct. This was developed further in each of his subsequent important publications (i.e. the *Systèmes,* the *Manuale,* and the *Trattato),* though the term 'non-logical actions' was not always used, especially prior to his 1910 "Le Azioni Non Logiche" (Pareto 1980j). Instead of the term 'non-logical conduct', Pareto often refers to conduct that is influenced by religions (or religious sentiments), where religion is defined as the "acquiescence to certain *a priori* principles that are neither demonstrated nor scientifically demonstrable. This acquiescence is the effect of live and potent sentiments" (Pareto 1980h, p. 322). Clearly Pareto's concept of 'religions' encompasses beliefs, but it is not limited to those based on the worship of a supernatural being. Religion, when used in a Paretian context, includes general social creeds.[15]

Pareto's recognition of the importance of non-logical conduct significantly influenced his methodology. He recognised that

> religion is the indispensable cement of every known human society… [and that] the social effects of a religion are virtually unrelated to its theology or its theoretical principles, but depend above all on the sentiments that develop or strengthen in men.
>
> (Pareto 1980h, pp. 322–23)

As a consequence, his methodology needed to be broad enough to facilitate examination of subjective factors that influence human conduct, where the benefits realised from such conduct may or may not reflect the subjective motivation for conduct. To use Giovanni Busino's phrase, "discovering the logic of non-logic" (Busino 1994, p. 10) became Pareto's goal.

In attempting to achieve his goal, Pareto's social theory came to focus more and more on hypothetical propositions, rather than descriptions of social evolution. As Busino (1989, pp. 381–82) indicated, this was evident by the article "Programma e Sunto di un Corso di Sociologia" (Pareto 1980g). By the time that Pareto wrote the *Trattato,* his focus was well and truly centred on hypothetical propositions based on abstract social theory developed around three distinct 'aspects': the objective aspect, the subjective aspect and the aspect of utility.

Three aspects of social inquiry

The importance of the three aspects of social inquiry is emphasised in Joseph Lopreato's "Notes on the Work of Vilfredo Pareto":

> Early in the *Treatise* (section 13) he [Pareto] states that a social fact may be viewed from three aspects: the *subjective* aspect, the *objective* aspect and the aspect of *utility*. The *Treatise* never lets up on the application of this classification.
>
> (Lopreato 1973, p. 456)

The objective aspect of theory defines the relationship between the subject being studied and scientific evidence. If the subject matter is observable it is an experimental matter. If it is not observable it is a non-experimental matter. Exclusive utilisation of a logical nexus between the elements of the observed subject matter to determine general principles constitutes the *logico-experimental* approach.

The subjective aspect involves identification of elements that are associated with the objective phenomenon, but are perceived subjectively by people. This involves consideration of why people make subjective assertions (which may be simply stated, or disguised in complex pseudo-logical reasoning) and why others assent to them. The subjective and objective aspects are experimentally linked. Subjectivity *per se* is non-experimental because it cannot be observed. However, manifestations of subjective influences are

observable, such as through written documents (including the reasoning associated with sentiment) and human conduct itself. For example, objective observation of religious behaviour (in the broad Paretian sense) is a requisite to the identification of uniformities of conduct associated with subjective religious sentiment.

However, Pareto's distinction between the objective and subjective aspects of the logico-experimental approach is not absolute, but relative to the current state of knowledge.

> We must not be misled by the names we give to the two classes [objective knowledge and subjective knowledge]. In reality both are subjective, for all knowledge is subjective. They are distinguished not so much by any difference in nature as in view of the greater or lesser fund of factual knowledge that we ourselves have.
>
> (Pareto 1935, pp. 76–77)

The "ethical neutrality" of the logico-experimental approach is relative to the limits of the objective aspect, which in reality is subjective. The objective and the subjective aspects of general sociology are initially considered in relation to social doctrines and theories, from which the rapport between the subjective and the objective is developed. Verification of this relationship is then sought in history. As Bobbio (1964, p. 189) noted, this means that theories of social conduct (other than logico-experimental theories) are the data of social research that identify the forces operating in society.

> [T]he inductive method is the method which, by analysing non-logicoexperimental theories, discovers the forces operating in society…the deductive method is the method which, once it has established the nature of these forces and suggested their classification, turns to the study of history in order to verify their validity. Thus the study of history, which in traditional political science comes first, is last in this case, in consequence of the fact that the primary sources of research are not historical narratives, but the so called non-logico-experimental theories.
>
> (Bobbio 1964, p. 189)

The final aspect, that of utility, concerns the advantage or disadvantage from subjective assertions and the consequent conduct that such assertions inspire. Utility is considered in relation to the person (or the persons) making the assertion, the people assenting to it and for the collective as an entity. The subjective aspect is solely concerned with the existence of nonlogical influences on human conduct. The aspect of utility concerns the individual and collective benefits or costs resulting from objective acts inspired by subjective influences.

The relationship between the objective aspect (experience), the subjective aspect (sentiment) and the aspect of utility is complex and is formally examined in Chapter 3. Direct correlation between the objective fact and utility is rejected because of the importance of non-logical factors. An absurd theory that does not correspond with social facts may be socially beneficial (Pareto 1935, p. 38). A major challenge of Pareto's methodology is to effectively isolate the objective from the subjective, define the rapport between the objective and subjective, and consider what this reveals about the utility of conduct.

2.5 Some critical assessments

Across the economics literature, Pareto's propositions on methodology have been largely ignored by all but the handful of economists who consider Pareto from a socio-economic perspective. However, there has been some discussion in the sociological literature. Only concerns over methodology are raised in this chapter. In this regard, the main critical comments in the sociological literature focus on:

(i) the hidden assumptions and bias associated with Pareto modelling his methodology on the physical/mathematical sciences
(ii) the treatment of social progress given the classification of conduct as either logical or non-logical
(iii) the excessive level of abstraction
(iv) the 'timelessness' of theory

Hidden assumptions

In regard to the role of induction in Pareto's theory, it is instructive to consider the concerns that Max Millikan raised in his 1936 review of the just-published English language translation of the *Trattato* (Millikan 1936, p. 335). He points out that the use of induction to develop theory (or what he calls the "initial classification") rests on assumptions about how to classify the observed facts. Pareto, characterised as the "pure inductionist", is thereby charged with obscuring and hiding assumptions "beneath a screen of apparently untreated observational fact" (Millikan 1936, p. 335). He then goes on to conclude that:

> Pareto's misunderstanding of the scientific method led to what is perhaps a clumsy statement of the theory. He felt that facts he was adducing were to be considered as evidence rather than as illustration. … Now actually you cannot prove a theory by reference to the facts. You can only disprove it by the facts.
>
> (Millikan 1936, p. 336)

However, Pareto was not a pure inductionist. His use of induction is based on the premise that the human action under consideration is nonlogical. If this is accepted, then advancement would be achieved by progressively reducing ambiguity, subjectivity or overlap from inductive classifications, and then re-considering the rapport between the elements identified in the classification. The methodological problem that Pareto struggled with is clear. His concern is to avoid an absolute determinism that is scientifically false (Pareto 1974b, pp. 184–85). This is why Pareto's methodology concerns relative determinism within very general bounds. The use of induction to study the non-logical basis of social theory and doctrines, followed by deduction and synthesis to develop social theory, enables the identification of very general theoretical propositions without drifting into the realms of false determinism or non-experimental subjectivism.

Of course this does not mean that induction cannot hide assumptions; only that they will be progressively revealed and expunged as scientific knowledge increases. Millikan's own alternative to Pareto's method is somewhat curious.

> In sociology…a number of disinterested persons must confess themselves unable to refute a theory before its probable value can be established. Had Pareto realised this…he might have substituted for some of them [i.e. his historical examples] hypothetical cases designed to clarify his meaning.
>
> We may conclude…that his [Pareto's] exposition of the scientific *method* is so faulty that it should be kept from tender young minds.
>
> (Millikan 1936, p. 336)

It appears that Millikan considers that replacing the use of induction in the development of theory with obscure and hidden evaluation criteria (i.e. the judgement of disinterested people) is a scientific advance. The scientific question should be, what criteria will these disinterested persons use to evaluate a theory? Pareto's unequivocal answer would be the objective aspect of phenomena, but in full recognition that the notion of objectivity is relative to the current state of knowledge and time and space.

Macpherson (1937), like Millikan, is concerned about bias in Pareto's methodology from hidden assumptions. He argues that the methodological model supplied by the natural sciences cannot be extended to the social sciences. This is because social researchers have their own subjective biases and they cannot bring a strict objectivity to the study of social phenomena. Suppressing consciousness of this bias by aspiring to a scientific objectivity that is unrealisable is a major methodological error according to Macpherson, and it is one that Pareto commits when he employs a model based on the natural sciences.

> The influence of his [Pareto's] bias on his whole sociology is obvious, and I would argue that this influence is so powerful not in spite of, but because of, his adherence to the methods of the natural sciences.
>
> (Macpherson 1937, pp. 469–70)

Consequently, to Macpherson, good social theorists have a heightened appreciation of their biases, and make them explicit in their work. However, Macpherson's concern with Pareto's methodology is overstated. He, like Millikan, does not appear to appreciate Pareto's explicit acknowledgement that the objective aspect of social enquiry is, strictly speaking, a subjective factor.

If Pareto's general and multidisciplinary goals for science are recognised –that is, if one supports Pareto's philosophy of science—then the logical basis of Macpherson's and Millikan's concerns is diminished to a level that is common to all studies of social phenomena. Therefore, the scope for dispute appears to concern the non-logical (that is, the philosophically determined objective of Pareto's social science) rather than the issues associated with the logical rapport between Pareto's methodology and the realisation of science as he defined it.

Progress and non-logical conduct

There has been some discussion of Pareto's contempt for "progressive" social doctrines (Macpherson 1937, p. 468), and the emergence of Pareto as a precursor to fascism (Borkenau 1936). There is certainly no doubt that Pareto's discussion of emerging social doctrines was brutal, as the following extended quote from the *Trattato* shows:

> In the theology of progress, the history of humanity is chiefly, and perhaps exclusively, the history of the struggle of the principle of 'evil', called 'superstition', and a principle of 'good', called 'science'.... In the hayday of Christian fervour 'Pagan Superstition' was in the ascent as opposed to 'True Religion'. In modern times 'Private Property' came to dispute the primacy of 'Superstition', and Rousseau berated the poor thing with appalling invectives. But in the days of the French Revolution 'Superstition' resumed her former throne, this time with an ample household of paladins, and to wit, kings, nobles and priests. Then theoretical speculations had their turn again, and 'Capitalism' succeeded 'Private Property' much as Jupiter succeeded Saturn of old. Blessed the man who holds such a key of knowledge. Every mystery, past, present, or future, yields to the magic password 'capitalism'. Capitalism and capitalism alone is the cause of poverty, ignorance, immorality, theft, murder, war.
>
> (Pareto 1935, p. 1317)

> good, which in days gone by was 'True Religion'…is nowadays 'Science'. 'Science' too surrounds herself with minor deities such as 'Democracy', 'Humanitarianism', 'Pacifism', 'Truth', 'Justice'—all those entities, in short, which are deemed worthy of the epithet 'progressive', and which, like the angels of light fighting the angels of darkness, fight other entities called 'reactionary' and defend and preserve our wretched humanity from the wiles of demons.
>
> (Pareto 1935, p. 1318–319)

However, the methodological basis for these comments is unequivocal.[16] Judgements about one social belief (superstition) by professors of another belief (true religion) are not scientific because the judgement incorporates non-stable, non-logical considerations. The ethical basis for social doctrines cannot be demonstrated objectively, especially in the light of the historical evidence that the 'form' of social doctrines is highly variable over time. Pareto's reference to science is also a reaction against quasi-scientific rationalisations used to support the view that the 'minor deities' are rational advances on earlier social doctrines.

As a consequence of this, Bellamy (1990), Perry (1935) and Borkenau (1936, p. 101) seem to suggest that Pareto excluded everything but material interest from policy and science. However, this is a false interpretation. As shown below, Bellamy's error lies in his failure to recognise the distinction between the subjective aspect and the aspect of utility. In contrast, Perry's and Borkenau's error is a failure to recognise that material interest may be considered in relation to both logical conduct and non-logical conduct—i.e. that the concrete economic phenomenon can be analysed from different perspectives.

When the distinction between subjectivity and utility is ignored, Pareto's ridicule of subjective beliefs is readily misinterpreted. Richard Bellamy suggests that, for Pareto, "rational agreement on common goals was impossible, for values reflect subjective preferences" (Bellamy 1990, p. 449). This results in a crude interpretation of Pareto's approach to public policy:

> Disillusionment at the frustration of his liberal ideals led to a cynical view of politics…. His sociology then elaborated upon this jaundiced interpretation…. [O]nce his liberalism was deprived of its ethical basis he found himself left with nothing but the forces of naked self-interest and with no compelling argument for why they should be transcended.
>
> (Bellamy 1990, p. 451)

If Bellamy had appreciated the distinction between the aspects of subjectivity and utility he would have noted that Pareto's theory of social utility and the associated theory of sociological maxima provides a logical basis for transcending economic interests. While Pareto was scornful of the logical

pretensions of beliefs, he was not scornful of the notion of social utility. For Pareto, utility was no longer a purely subjective element, but a quantitative issue concerning the conversion of heterogeneous preferences into homogenising preferences (Pareto 1935, p. 1578), as considered in Chapters 7 and 8.

On the issue of material interests, Perry (1935, pp. 106–07) puzzles why pursuit of material interests is logical and determined independently of other drives classed as non-logical. Franz Borkenau similarly associates logical action with economics, and suggests that the logical/non-logical distinction is to "show that there are intrinsic differences between actions in agreement with his liberal creed and others that oppose it" (Borkenau 1936, p. 101).

Pareto did distinguish between material interests and 'ideal interests' (Pareto 1935, p. 1516). He also accepted that progress had been made in economic production when considered historically (Pareto 1935, p. 1578), which is in stark contrast to his comments on the history of theologies. However, material interests and economic production also relate to objective 'materials'. On the basis of objectivity, Pareto was able to talk about material factors without going beyond the bounds of his methodology, whereas ethical judgements over ideal interests clearly are beyond the bounds of science.[17]

Moreover, when material interests are considered in the context of pure theory, they may be considered from both a logical perspective (pure economic theory) and a non-logical aspect (the 'interests' of general sociology, including discussion of speculators). Perry and Borkenau seek one-to-one correspondence between economic theory and fact, rather than recognising Pareto's synthesis of different 'slices' from the concrete economic phenomenon examined.

Abstraction

Pareto's suggestion of 'slicing' concrete phenomena raises the more fundamental issue about whether concrete phenomena can be sliced into multiple and competing abstractions. In 1927 Ugo Spirito reacted most strongly against Pareto's division of phenomena, ultimately advancing the view that "[N]o one with real historical understanding could ever give importance to the distinction between logical and non-logical action" (Spirito 1978, p. 37). His view was that Pareto's high level of abstraction across both economic and social study was so remote from the concrete phenomenon that, if applied, it would impede the development of economics and the social sciences. Problems cited by Spirito focused on the difficulty of reconciling conflicting theoretical propositions (what Pareto referred to as interferences) and their verification in the face of such conflict.

Spirito's concerns can be further generalised. As the number of disciplines increase, so too does the number of abstractions and the level of abstraction, each becoming more and more remote from the concrete phenomenon. A consequence of this would be that the process of synthesis becomes more

complex and arbitrary, progressively increasing the difficulty of verification of individual theories.

However, this is not necessarily a consequence of Pareto's methodology. Correspondence with the concrete phenomenon is the first test of every approximation and, as will be shown in Chapter 3, the distinction between logical and non-logical conduct has an experimental basis. Furthermore, as scientific knowledge increases, synthesis of approximations may increase due to theories based on new slices of the concrete, but the proportion of conduct accounted for by synthesis decreases as the level of scientific knowledge associated with pure and applied theory increases. That is, while synthesis remains an essential element of understanding the concrete phenomenon—particularly for variations from one social form to another-its contribution to an appreciation of the concrete diminishes as science advances. Similarly, this diminution of the explanatory power provided by synthesis is accompanied by a diminution of the difficulties of verification.

Timeless theory

One other consequence of Pareto's abstractions and slicing of the concrete phenomenon based on a physical science methodology was concern over the apparent timelessness of his work.

The first point to note is that Pareto's own approach to economic and social theory emphasised the timelessness of the mechanical analogy (see Chapter 4). Even the use of the term 'virtual' movement carries with it an implication of timelessness. Of course, this may be partly attributed to a view that the development of economics and sociology had not advanced to the level where dynamics could be usefully considered. There is no doubt that Pareto recognised that pure theory must be extended to encompass dynamics (Pareto 1897, p. 492). He made a brief investigation of the matter in economics after publication of the *Cours*. In addition, he attempted to lay the foundations for dynamic sociological theory in the *Trattato*.

Nevertheless, as Franco Donzelli (1997) demonstrated, Pareto's attempts at dynamic economics met with very limited success. Pareto himself came to realise that his contribution to developing a dynamic economics was limited.

> The study of pure economics is composed of three parts: a static part, a dynamic part which studies successive equilibria, and a dynamic part which studies the movement of an economic phenomenon.... The theory of statics is the most advanced; we have only a very few notions about the theory of successive equilibria; and, except for a special theory, that of economic crisis, nothing is known about dynamic theory.
>
> (Pareto 1971c, pp. 104–05)

Given this, it is useful to consider whether Pareto's methodology can

accommodate dynamic theory. The first point to note is that Pareto "indissolubly joined sociology with history and above all founded sociology on history" (Lopreato 1973, p. 456). This has lead John Houghton and Joseph Lopreato to claim that "Pareto is often falsely accused of basing his sociology on 'physicalistic' or 'mechanistic' analogies" (Houghton and Lopreato 1977, p. 19), when his ultimate goal was "an evolutionary social science" (p. 20). In contrast, Werner Stark argued that Pareto's sociology is "blinded by the timelessness and universality of mechanical regularities" (Stark 1965, p. 54).

Perhaps the reason for these diverse views relates to uncertainty over Pareto's unique application of the equilibrium concept to social theory. Maniscalco (1999) examines the respective roles of 'equilibrium' and 'social process' in Pareto's work, finding that the Paretian hypothesis of a tendency to social equilibrium is not static (Maniscalco 1999, p. 236). This view is supported by an number of observations which suggest that Pareto's concept of equilibrium is not obstinately faithful to the concept of equilibrium [in physics]. As evidence of this, Maniscalco cites Pareto's analysis of decadence, social change under conditions of instability, and also through his synthetic treatment which incorporates historical factors when considering social change.

Notwithstanding this, there is little doubt that Pareto made his greatest contribution to theoretical economics and sociology in a timeless context (as defined in Chapter 1). This is supported by a number of factors: his emphasis on general substantive matters that are common to various social forms; the de-emphasis on the variable influences of the social form on social movement; the use of a synthetic union by successive approximations to approach the concrete; and consideration of change in the context of virtual movements. This is why the logico-experimental method considers the existence of economic and social cycles, and the forces that impact on these cyclical movements, to be more fundamental and important than the determinism of dynamic processes (which are very much influenced by the 'form' of social organisation).

In this study it is argued that, in spite of the limits of timelessness, Pareto's mechanical analogy remains a theoretically useful instrument.

2.6 Conclusion

Criticisms of Pareto's methodology have not generally been successful in logical terms. As long as methodology defines the relationship between the objective of science and the analytical tools developed to achieve that end, methodology will always impose constraints that shape the definition of science. No one can say with authority what the objective of science ought to be. In spite of this, much of the criticism of Pareto's methodology is based on perceptions that the objective of science is different from that pursued by Pareto.

Criticisms of the logical/non-logical division, his level of abstraction, and

his often timelessness specification of theory are by and large motivated by a rejection of Pareto's multidisciplinary social science of general regularities. When competing philosophies of science advocate identification of laws that are less general and more realistic (because they are specific to a particular set of institutional arrangements and time frame), then many of Pareto's fundamental methodological distinctions become less important or irrelevant.

However, if Pareto's generalist approach to science is endorsed, it is difficult to fault the logic of his focus on social fact in the context of general laws. It provides a framework designed to remove metaphysical notions from science. As Maurice Allais concluded (after considering Pareto's methodological discussions scattered across his economics and sociology), "Pareto's greatest achievement is his illuminating presentation of the methodological basis of economics as a science" (Allais 1968, p. 401).

3 Method

The analytical elements of pure economics and general sociology

3.1 Introduction

This chapter examines the analytical components derived from the analogy with rational mechanics, which came to constitute the fundamental elements of Pareto's pure economics and general sociology.

Section 3.2 considers the evolution of Pareto's *homo œconomicus* from his September 1891 article "Lasciate Fare, Lasciate Passare" (Pareto 1974a) to the 1916 *Trattato.* Attention is given to the mechanical analogy from which the abstract element *homo œconomicus* derives, and the relationship between ophelimity and utility. It is suggested that the liberal ideals of the young political activist were reflected in the hypothetical propositions of the *Cours,* and in the application of these propositions, by assigning a dominant influence on human behaviour to a single element of abstract theory. The consequences of Pareto's focus on the 'fact of choice' for *homo œconomicus* and the progressive exclusion of non-logical factors from pure economics are also considered. Section 3.3 examines the main elements of Pareto's general sociology which, like *homo œconomicus,* can be considered within the context of the mechanical analogy. Section 3.4 considers the rapport between Pareto's pure economics and general sociology, with Section 3.5 building on this by considering Pareto's analytical system in the light of Amartya Sen's 'rational fools'. Economic policy, as a mixture of logical and non-logical conduct, is considered in Section 3.6. The conclusion is given in Section 3.7.

3.2 Pure economics: the evolution of *homo œconomicus*

The mechanical analogy and deductive maximisation

In his 1877 article "Della Logica delle Nuove Scuole Economiche", Pareto expressed an expectation that once further scientific advancements were achieved in the study of society, it may well be demonstrated that *laissezfaire [lasciar fare, lasciar passare]* is the best general policy for a society:

> I should like to stop and see if, in the many sides of the art of governing …[*lasciar fare, lasciar passare]* does not still represent the best maxim towards which human knowledge takes us. So that, instead of being taken as an a priori basis of political economy, this proposition should be considered a result, not only of this, but of all the other social sciences.
>
> (Pareto 1980a, p. 87)[1]

It appears that between retirement from the *Ferriere Italiane* (1890) and publishing the *Cours* (1896–97), Pareto's economic studies were aimed at verifying that *laissez faire* is a policy maxim that is consistent with a general economic theory founded on scientific principles. Just one year after his retirement, Pareto revisited the issue of *laissez faire* in an article in the *Giornale degli Economisti* entitled "Lasciate Fare Lasciate Passare". For historians of economic thought this article is important because it provided the first clear outline of the mechanical analogy in Pareto's economics, including an outline of *homo œconomicus:*

> now the science of economics tends to separate itself into two branches. In the first case, one departs from some postulates, in fact only one postulate, that of hedonism, and having assumed a *homo œconomicus* whose actions are hedonistic in every thing, one establishes the workable basis of a deductive science that represents what would happen in a society composed of such men.
>
> In the other, one brings together like facts and tries to deduce laws from them, which cannot be non-empirical, and from which one deduces theorems which one always tries to verify with experience.
>
> In our opinion these two divisions correspond precisely to that which occur in mechanics. Just as pure economic science considers a *homo œconomicus* more or less alongside of real man, rational mechanics also considers an irreducible…matter, it abstracts from friction, air resistance, etc. In short, a deductive science is created that is valid only for an ideal world. Practical mechanics in its turn takes account of all the circumstances neglected in rational mechanics, often needing to have recourse to empirical laws.
>
> (Pareto 1974a, pp. 443–44)

His next reference to *homo œconomicus* is in the 1892 "Considerazione sui Principii Fondamentali dell'Economia Politica" (Pareto 1982a), where he makes it clear that utility and *homo œconomicus* are related concepts. While recognising that marginal utility is an important influence on economic conduct, Pareto expresses doubts about the existence and importance of total utility. "Has this *total utility* a real existence? Is it present in the conscience of *homo œconomicus?"* (Pareto 1982a, p. 82).[2] In response, he indicates that economists consider individuals' actions in relation to another 'quantity', that of marginal utility. This reference to quantity indicates that marginal

utility is regarded as a quantifiable 'force' that acts on *homo œconomicus*—i.e. the force of marginal utility is a cardinal magnitude. The individual maximisation principles associated with the *homo œconomicus* and the hedonistic postulate were subsequently sketched in a letter to Maffeo Pantaleoni on 22 July 1893:

> I call *pure economics* the body of doctrine which can be deduced from the hedonistic postulate with *few or none* of the other properties of the human psyche. Pure economics studies the *homo œconomicus* who is guided only by the desire to obtain the greatest utility with the minimum effort.
>
> (Pareto 1960a, p. 386)[3]

Elementary ophelimity displaces marginal utility

In his 1894 article "Prelazione al Corso d'Economia Politica", Pareto emphasised that "political economy is a part, a very small part, of the social sciences. It has its own domain, in which it is queen, but it must not usurp the domain of other sciences" (Pareto 1980b, p. 105). In his first major economic study, the *Cours,* Pareto wished to reinforce this by specifically considering economic and social phenomena, including social evolution and social physiology (which concerns the make-up of society). Because of this, Pareto identified different types or species of utility for the purposes of hypothetical propositions. At the broadest level, this constitutes the distinction between 'utility' and Pareto's neologism 'ophelimity'.

This distinction was justified in the *Cours* on the basis that it would overcome confusion. In general usage, 'utility' conveyed the view that something was useful or "the opposite of harmful" (Pareto 1971a, p. 126), whereas in the "new theories" of economics, 'utility' simply represented a "relationship of convenience between a thing and a man" (Pareto 1971a, pp. 125–26).[4]

The term utility is used to describe the property of an action that enhances 'well-being', and may be considered in terms of the individual (individual utility), the community (utility of the aggregate), or society broadly defined (utility of the species). An increase in an individual's utility is associated with an improvement of that individual's well-being. Similarly, an increase in utility of the aggregate or species is associated with an improvement in the well-being of the community or society. Pareto also identified the elements which impact on utility as material, physical, intellectual and moral well-being, and the reproduction of these attributes through time (Pareto 1971a, p. 1086). He considered that this accorded with the popular usage of the term utility. However, he found that the concept of utility was so vague and variable, that it could not be readily used in scientific investigations.[5]

The forces of 'ophelimity' and utility associated with a specific action need not have the same mathematical sign. A pleasant sensation does not necessarily

signify that utility is positive. Utility is effectively a weighted ophelimity, where the weighting is based on the individual's assessment of the rapport between pleasant sensations from particular conduct and wellbeing. Consequently, ophelimity is an analytical sub-class of utility in that it abstracts from the need to consider the rapport between pleasant sensations (which need not be positive) from particular conduct and well-being.

By considering sensations derived from the satisfaction of wants and desires irrespective of their legitimacy (Pareto 1971a, p. 1086), rather than utility, economic theory could achieve a level of "precision and certainty comparable to the propositions of the natural sciences such as chemistry, physics, etc." (Pareto 1971a, pp. 1086–87).

> First we separate the study of ophelimity from the diverse forms of utility, then we direct our attention to man himself; stripping him of a large number of his attributes, leaving out the passions, good or bad, reducing him to a kind of molecule that only acts in response to the forces of ophelimity.
>
> (Pareto 1949b, pp. 442–43)

In pure theory, *homo œconomicus* of the *Cours* is analogous to a molecule in the theory of mechanics. This analogy, and the methodological context within which *homo œconomicus* was developed, is especially clear from the comparison in the *Cours* reproduced in Table 3.2 at the end of this chapter.

Kirman has pointed out that "Pareto regarded equilibrium as the termination point of a process…. The time taken for this process is not specified but it certainly is not regarded…as negligible" (Kirman 1987, p. 806). Kirman is correct to the extent that the *Cours* describes economic processes in the text, and to the extent that pure theory was used to illustrate the concrete economic phenomenon through discussion of 'virtual' movements. Nevertheless, the formal model of economic equilibrium based on *homo œconomicus,* which is largely contained in the footnotes, is a timeless first approximation to the concrete economic phenomenon. Just as rational mechanics considered dynamic physical phenomena associated with material points as a purely timeless theory, so too does Pareto's pure economic theory consider equilibrium conditions timelessly. This provides the context for Pareto's use of price variables in the equations of exchange as those prevailing under general equilibrium, and explains why discussion of variations or adjustment processes relate to virtual movements (i.e. movements that abstract from the precise relationship between time and outcomes).

Consequently, *homo œconomicus* is best regarded as an essentially timeless abstraction. While recognising that, in reality, transmission to a state of economic equilibrium was a time-dependent dynamic process, Pareto regarded the transition to equilibrium as a secondary phenomenon, beyond the scope of pure economic theory. Of course this does not imply that

effects on current behaviour due to future concerns are ignored in pure theory. *Homo œconomicus* does save and invest (Pareto 1971a, p. 129) because "it"[6] has regard for both current and future pleasures, and as such does not consume all its resources in the current period.

Having distinguished between ophelimity and utility, and drawn on the mechanical analogy, Pareto also set about differentiating between types of utility and ophelimity for consideration in abstract theory.

> One can distinguish different types of utility according to the diverse aspects of human nature which assure development and progress. Economic utility would be that which assures material well-being, moral utility that which would produce the development of more perfect morals etc. Similar divisions can be adopted for ophelimity; as it may satisfy material, moral or religious, needs and desires etc., will be called economic, moral or religious ophelimity etc.
>
> (Pareto 1971a, p. 129)

Economic ophelimity is the pleasure that results from the exchange of goods and services, and religious ophelimity is the pleasure from religious activity, etc. Economic utility concerns improvement in well-being as a result of the exchange of goods and services, and religious utility concerns the improvement in well-being from religious activity. However, the relationship between well-being and exchange, religious activity, and so on, is vaguer and more difficult to analyse than the relationship between pleasure and exchange, religious activity, etc.

Pareto's distinction between ophelimity and utility is regarded curiously in contemporary economic theory. It is usually only examined in the context of the history of economic thought. Ricci notes that some people use the term ophelimity for "philological reasons", but suggests that it will "remain a mere curiosity in the history of our science, in the company of other strange words such as catallactics, chrematistics and others" (Ricci 1933, p. 11). Myrdal (1953, p. 99) calls it a "new monstrosity", and Hutchison more kindly states that it is a "terminological novelty [that is] hardly in itself of much significance" (Hutchison 1953, p. 220).

In stark contrast to these views, Tarascio concludes that the distinction between ophelimity and utility is fundamental to Pareto's general analytical system (Tarascio 1968, p. 83). It is the contention in this chapter that Tarascio's view is correct, but that distinction is mainly important for work published subsequent to the *Cours,* where Pareto's distinction between logical and non-logical conduct makes it clear that ophelimity acts as a 'stable and enduring' force on conduct, while utility acts as a potentially 'unstable' force on conduct.

In the *Cours,* more emphasis was placed on the descriptive aspects of social evolution and applied economics than on hypothetical propositions associated with social phenomena. Nevertheless, the theoretical framework

was designed to accommodate hypothetical propositions using a variety of postulates. There can be no other explanation for introducing different types or species of ophelimity and utility. However, the rationale for these distinctions was removed when Pareto asserted that in materially prosperous countries, "economic ophelimity must not depart much, in general, from that of economic utility with which other types of ophelimity (moral, religious, etc.) must reconcile themselves" (Pareto 1971a, p. 130).

This implied that *homo œconomicus* was the sovereign character that dominated the entire range of other possible abstract models of man used to develop hypothetical propositions. Social evolution could still influence concrete factors that are the subject of historical influences, and as such would be considered as part of applied economics. But *homo œconomicus* is the sovereign of pure theory, and of hypothetical propositions deduced from pure theory (which is also considered as part of 'applied' economics in the *Cours).*

In these circumstances, the distinction between ophelimity and utility serves little purpose, especially as the dominance of *homo œconomicus* in the *Cours* is extended to 'applied' economics where theorems are deduced from pure theory and given some practical application. Ugo Spirito argued that the *Cours* turns

> systematically on only one scientific postulate: that of free competition. …Pareto proposes in the *Cours* to demonstrate the necessary and sufficient conditions required to reach the maximum of general ophelimity. …He always finishes with the conclusion that the only necessary and sufficient condition is free competition.
>
> (Spirito 1978, pp. 10–11)

The *laissez-faire* ideals of the young engineer/manager were thus verified in the *Cours,* albeit based on an arbitrary assumption, that is, that *homo œconomicus* dominates other abstractions. Of course, this does not mean that the *Cours* is seriously flawed from an analytical perspective. It is an error of synthesis, of the relationship between theory and fact. Consideration of collective economic welfare under free competition is a scientific issuehypothetical propositions derived from the study of *homo œconomicus* are not simple assertions, they require logical deductive demonstration. Spirito's critique raises the issue of whether the pure theory is a reasonably close approximation to the concrete phenomena (and Spirito contends that it is not), and if not, whether the dominance of *homo œconomicus* needs to be reconsidered.[7]

Pareto himself came to appreciate the faults in the *Cours* shortly after it was published. The preface to the *Manuale* (which was not included in the English translation), notes:

> In all the *Cours* the author considers peace, economic liberty, the best means of obtaining the good of the population. But of such propositions

> he does not give, nor can he give, scientific demonstrations derived only from facts. The belief which is prevalent in the *Cours* transcends, at least for now, objective reality and in great part appears to have its origin in sentiments. Therefore it is absolutely necessary to exclude it from a work which aims at studying facts scientifically.
>
> (Pareto l974c, p. 5)[8]

To overcome his error of synthesis, Pareto started to focus on two highly related factors (which may be said to constitute different sides of the same coin). The first was the redirection of economic analysis towards the 'fact of choice', and the second was Pareto's evolving distinction between logical and non-logical action.

Logical action and the fact of choice

The first published evidence of a major shift on the role of *homo œconomicus* comes in Part I of the March 1900 "Sunto di Alcuni Capitoli di un Nuovo Trattato di Economia Pura" (Pareto 1982e). This was rapidly followed by comments in June 1900 in Part II of the "Sunto" article (Pareto 1982f), with many of the issues raised reinforced in Pareto's published letters to Benedetto Croce in August 1900 (1982g) and February 1901 (1982h).

The "Sunto" acknowledges that the *Cours* "implicitly affirms that pleasure is a quantity" (Pareto 1982e, p. 370). More importantly, it suggests that such an assumption is not necessary because the "equations of pure economics and their consequences remain unaltered whether one starts by considering pleasure as a quantity, or whether one limits oneself, as we do, to exclusively consider the fact of choice" (Pareto 1982e, p. 373). As a result, Pareto identifies two distinct types of *homo œconomicus*.

> If one considers it *[homo œconomicus]* from the viewpoint that pleasure is considered like a quantity, man is reduced to a pleasure machine (the expression of Prof. Edgeworth, Mathematical Psychics, p. 15) that searches in any occasion to procure the greatest sum of pleasure for itself. If it is considered from the view point of choice, *homo œconomicus* becomes a machine that effects choices, which, under given circumstances, constantly carries out the same choice.
>
> (Pareto 1982e, pp. 378–79)

Consideration of the fact of choice does not eliminate ophelimity[9] from theoretical consideration because the 'two' types of *homo œconomicus* are reconciled. Choice is conditional on given circumstances, and logical action is subject to these given circumstances. The theoretical corollary of this is that actual choice is predicated on a curve of obstacles. This curve shows the maximum consumption bundles possible under given circumstances, such as prevailing market conditions and resources, when logical quantity

maximising means are employed to arrive at each of the points on the curve of obstacles. Given this, the fact of choice is represented as the point of tangency between the curve of obstacles (i.e. the given circumstances and logical conduct in a technical sense) and the indifference curve, indicating that in given circumstances it is not possible to increase ophelimity.

But this is only one aspect of logical conduct by *homo œconomicus,* and the one least emphasised by Pareto. The second aspect of logical conduct is largely unique to the focus on "the fact of choice", namely the requirement for the enduring stability of choice evident from the reference to *homo œconomicus* "constantly carrying out the same choice". The basis of this claim is clarified in the *Manuale,* where general equilibrium is also defined in relation to the "many logical and repeat actions…to procure the things which satisfy tastes" (Pareto 1971c, p. 107). In this context, logical action is defined as the situation where the "objective fact conforms perfectly with the subjective fact" (Pareto 1974c, p. 105). That is, an exchange is a logical act when there are no regrets, no reflective expectation by individuals that their ophelimity would have been increased by a different exchange.

This does not mean that Pareto's focus on the fact of choice excluded factors not observed in the market. On the contrary, as demonstrated in Georgescu-Roegen (1975) and Gross and Tarascio (1998), Pareto also considered 'potential' choices based on hypothetical binary experiments. After learning by doing has reached a stage where there is certainty about the logical relationship between objective means, and subjective and objective ends, constant and repeat actions are observable, and it is also possible to consider virtual movement around this point due to a change in circumstances. This provided the certainty and stability that Pareto required when considering theorems of collective economic welfare on a timeless basis (see Chapter 5).

It is well understood today that the stability of the relationship between a person and things that defines ophelimity is verified by establishing the integrability of the differential equation which states that the sum of the value of commodity exchanges is zero.[10] However, Pareto's discussion of stability is confined to the relationship between expected and realised maximisation from the exchange process, and without regard to the effect of behaviour outside the exchange process. While he did briefly mention the effect of the order in which goods are consumed on individuals' economic welfare (Pareto 1982f, pp. 395–96), it was not regarded as part of the principal phenomena of economics (but nevertheless very interesting from the psychological perspective).

In summary, the main consequences for economic theory of Pareto's post *Cours* attention on the "fact of choice" are:

- progression towards a generalisation of economic choice theory based on ordinal measures of ophelimity

- the maintenance of *homo œconomicus,* and the associated hypothesis that it maximises ophelimity
- the deliberate narrowing of the scope of pure economic theory, by linking the logical conduct of *homo œconomicus* to stable and enduring ophelimity fields.

For the present study, where the rapport between pure economics and general sociology is the central issue, the critical factors are the second and third points—though they are largely consequent upon the first point.[11] The second and third points could be said to constitute Pareto's 'bottom up' approach to reducing the scope of pure economics, as they establish the necessary attributes of logical action. Pareto complemented this by what may be called the 'top down' approach, whereby non-logical conduct is identified, defined and then excluded from pure economics.

Non-logical action

Pareto's systematic focus on non-logical action appears to date back to when he first started teaching his course in sociology at the University of Lausanne in 1898. However, it would be another 12 years before Pareto rigorously defined the distinction between logical and non-logical action in his 1910 "Le Azioni Non Logiche" (Pareto 1980j). Over this period, lots of examples of 'sentiments' were identified and excluded from pure economics.

In the 1899 "I Problemi della Sociologia" (Pareto 1980d), Pareto clarified the need for economics to be a part of a multidisciplinary social science.

> [It] is absurd, for example, to rebuke economic theories for not considering morals…. But, it would be equally absurd to pretend that economic theories are enough to make us aware of concrete social phenomena…. [T]he study of real phenomenon must combine all the information that we have…on ethics, on economics and on politics, etc.
>
> (Pareto 1980d, pp. 166–67)

In the "Sunto", published one year later, implicit exclusions of nonlogical conduct are made explicit. The poisoning of competitors and robbing travellers are beyond the scope of pure economics because 'moral' issues generally are non-logical (Pareto 1982e, p. 376).[12] Shortly after writing the "Sunto", Pareto suggested to Benedetto Croce that enduring cultural influences are non-logical factors excluded from pure economics (Pareto 1953a). He also takes his arguments one step further, by suggesting that both logical and non-logical actions can be studied in the context of consumer choice.

> If I had been born in China it is probable that I would smoke opium,

> but I was born in Europe and therefore I drink wine…. I would call such an action non-logical. I consider that non-logical actions are very numerous in choice, but when at a later moment, we attempt to relate given choices and obstacles, we assume that economic action is logical. Such a supposition corresponds to reality only in part. Hence economics studies only a part of the concrete phenomenon, and there remains another part, born of non-logical actions, which also needs to be studied.
>
> (Pareto 1953a, pp. 195–96)

Consequently, it is not economic conduct *per se* that is logical, but economic theory that studies the logical element of the economic phenomenon. This is a critical factor, as it foreshadows the view that concrete economic behaviour requires consideration of both logical and non-logical conduct.

A progressive attempt to clarify the meaning of non-logical actions followed in Pareto's twentieth-century work. In the 1906 *Manuale* the introductory chapter dealing with 'general principles' was followed by a chapter titled "Introduction to the social sciences". This formally introduces the distinction between logical and non-logical actions (Pareto 1974c, p. 34) and expounds examples of actions which may be considered non-logical. This included many actions inspired by notions of *religion, morality, law, humanitarianism, imitation, justice, democracy, socialism* and *sophism*.

This suggests an interesting comparison of the *Cours* and the *Manuale* over the rapport between pure economics and social theory. While different types of utility were identified in the *Cours,* the division had very little relevance for hypothetical propositions. It is not until the *Manuale* that different types of 'abstract man' are specifically identified (e.g. "the *homo ethicus,* the *homo religiosus,* etc." [Pareto 1971c, p. 13]). Moreover, the implicit assumption in the *Cours* that *homo œconomicus* is a reasonable representation of real man is expunged from the *Manuale.*

However, this does not imply that Pareto's economic theory and concept of ophelimity had lost contact with reality.[13] His focus on the fact of choice defined the relationship between economic theory and fact very clearly. Consequently, Clerc's view that Pareto finally acknowledged "that the *homo œconomicus*—the basic element of pure theory—had no reality whatsoever" (Clerc 1942, p. 589) reflects a misunderstanding of Pareto's relationship between theory and fact. Albert Hirschman makes a similar error of interpretation when he rejects Pareto's decision to limit the influences on *homo œconomicus* to the forces of ophelimity

> in order to get rid of psychology and so on. It was an *intentional* impoverishment of economics. It was made in order to let economics continue as a science—but at the cost of contact with reality.
>
> (Hirschman, interviewed in Swedberg 1990, p. 163)

Contrary to Clerc's and Hirschman's view, Pareto insisted on contact with reality. While he rejected one-to-one correspondence between economic theory and all concrete economic facts, he placed great importance on establishing the circumstances when the equilibrium of pure economic theory would fully correspond with the concrete phenomenon.

3.3 General sociology: elites, residues, derivations, interests

Formal definition of logical and non-logical action

In the previous section, references to non-logical conduct focused on examples and types. It was not until the 1910 "Le Azioni Non Logiche" (which reappeared in modified form as Chapter 2 of the *Trattato)* that non-logical conduct was formally defined. The first and most important characteristic of non-logical conduct is that "the objective end differs from the subjective purpose" (Pareto 1935, p. 78; 1980j, p. 346).

Where there is no subjective purpose, action is either purely instinctive or aimless. In the case of instinct, conduct may be confirmed as logical when the means/ends relationship is objectively observed. Nevertheless, this is classed as non-logical action because of the absence of reasoning about alternative ends in response to changed circumstances, and the associated question of changes in the means/ends relationship. In the case of aimless conduct there are no ends to consider, and thus no means/end relationship. Both types of actions are of "scant importance for the human race" (Pareto 1935, p. 79) and are essentially excluded from social enquiry.

The common aspect of non-logical conduct that is associated with Pareto's research into social conduct is the existence of subjective purpose. However, subjective purpose does not necessarily require an objective end. For example, the subjective purpose of faith in a divine being may be eternal life. Eternal life is not an objective end in an experimental sense, even though the observable means to that end are the data of social research (i.e. religious writings and rituals).

The major category of non-logical conduct for sociological research concerns the circumstance where action is directed to the realisation of a direct objective end and motivated by a subjective purpose. However, when the subjective purpose and the objective end are not the same or are in unstable relation to each other, the fact of choice is no longer repeated and constant in given circumstances. There is instability in the means/ends relationship under given circumstances. That is, the objective end is variable when the subjective purpose remains the same, and there is no longer a perfect correlation between the objective end and the subjective purpose. For example, an individual's association of the greatest social equity with a particular modification in the distribution of income would be non-logical if, on achieving that modification, the individual came to the conclusion that social equity would be further enhanced by another different variation to the distribution of income.

For clarity, this should be contrasted with Pareto's formal definition of logical actions where "the objective end and the subjective purpose are identical" (Pareto 1980j, p. 346; 1935, p. 79). This is essentially the same as the definition in the *Manuale* cited in the previous section, where indices of ophelimity reflect stable preferences. In relation to social phenomena, logical action requires stable preference maps. It is also clear from the text of "Le Azioni Non Logiche" that this definition is predicated on the means employed to realise an end being logically related to the end (Pareto 1980j, p. 345). In the words used in the *Trattato,* logical actions

> logically conjoin means to ends not only from the stand point of the subject performing them, but from the stand point of other persons who have a more extensive knowledge—in other words, to actions that are logical both subjectively and objectively.
>
> (Pareto 1935, p. 77)

In summary, then, human conduct of interest to the Paretian scholar is either logical, or one of two relevant types of non-logical conduct. For logical conduct, the direct objective end of a subjective purpose is constantly revealed as stable and enduring when circumstances are unchanged. Relevant[14] non-logical conduct may be revealed in two main ways. First, when the subjective purpose is not in constant relation to the direct objective end, conduct is not enduring and not repeated when circumstances are unchanged. Second, when there is no direct objective end associated with conduct, it is accompanied by rationalisations that justify the conduct in relation to a metaphysical end (e.g. worship of a deity).

Associated with these definitions is a change in the definition of utility. In the *Cours,* it is cast in the context of the conventional meaning of the term, i.e. something useful to one's long-term well-being. In the *Trattato,* it is given a more timeless emphasis by de-emphasising the focus on well-being and increasing the focus on utility as the expected benefits of action.[15] As discussed in Chapter 7, utility (as expounded in "I1 Massimo di Utilità per una Collettività in Sociologia" [Pareto 1980k]) becomes ophelimity, adjusted by weights inspired by unstable non-logical considerations. That is, individuals' ophelimity fields are converted into utility fields in relation to their own behaviour, and for the behaviour of other members of the collective. This is then homogenised by politically determined weightings of interpersonal comparisons to establish social utility (Pareto 1935, pp. 1466–74).

At an even more general level, utility is considered in the *Trattato* outside of dimensions defined by commodities (i.e. commodity space). Instead, it is related to the degree of conformity of conduct. As discussed in Chapter 8, this may concern an individual's conduct relative to collective norms, and also has some relation to the degree of conformity prevailing in the collective.

Based on the above definitions of logical and non-logical conduct, Pareto proceeded to identify elements of non-logical conduct that could be examined in an analogous way to *homo œconomicus* in pure economics. This was done by identifying the 'internal' elements of 'social equilibrium' amenable to inclusion in a general theory of society, where, as Pareto freely admits, social equilibrium is established by social 'forces' analogous to the physical forces in mechanics (Pareto 1935, pp. 65–66). As a consequence, Pareto's general sociology and pure economics were linked through an analogy with mechanics and their concern with utility and a type of utility called ophelimity.

> Pareto's sociological 'utility' and welfare theory represented a pioneering effort to carry the 'marginal revolution' beyond the boundaries of economics. Through his application of the marginal principle to the analysis of the political process, he demonstrated the generality of the principle.
>
> (Tarascio 1973b, p. 157)

The basic elements identified and included in the *Trattato* did not turn out to be *homo ethicus* or *homo religiousus,* as suggested in the *Manuale.* These abstractions lend themselves to axiomatic deductions requiring a logical means/end relationship and enduring and stable preferences. Because of the observed instability of non-logical actions, the 'internal' elements that Pareto developed were based on direct observation—a corollary of the shift to the fact of choice in pure economic theory. The 'internal' elements of social equilibrium are residues, derivations, elites and interests, which are briefly reviewed in the Appendix (in the subsection overviewing the *Trattato).*

Social equilibrium is the outcome of the interdependencies between these 'internal' elements. 'External' elements are excluded from the study of social equilibrium because they are outside the scope of 'general' sociology. External factors are the subject of special sociology and relate to forces that are external in space, like the influence of other societies, and forces that are external in time, such as previous occurrences (Pareto 1935, p. 1433). Physical factors, like soil and climate, are also external to the framework (and the relevance of the *Trattato* is also limited to European and Mediterranean countries).

Discussion of the internal elements of social equilibrium has dominated many sociological treatises on Pareto,[16] with research also undertaken on their causes (cultural, biological) and contexts (static, evolutionary). Given the objectives of this study, Pareto's internal elements of social equilibrium are not subject to sociological interpretation here. They are simply sketched in enough detail to facilitate an examination of Pareto's rapport between pure economics and general sociology.

Residues

Residues are the manifestations of human sentiments and instincts (Pareto 1935, p. 509). They represent a diverse range of actions related to individuals' psychic states (Pareto 1935, p. 514). As Gross (1995, p. 121) noted, residues are not objective entities in themselves. They are an objective classification of behaviour inspired by sentiment. The origin of these subjective factors is not important if we accept Pareto's view that social science should focus on social facts.

The common element in each of the classes of residues is enduring uniformities of the human psyche. That is, across all social forms, each of the above residues is evident. As such they constitute a 'constant' force on human behaviour, which is manifiest in various forms. Consequently, the proportion of each class of residue within and between social collectives is variable.

Pareto identified six classes of residues that have endured across all (European) social forms:

- *Class I residues: instinct for combinations* This residue includes general generic combinations, combinations of like or opposite types of a general or specific nature, combination of other residues, association of a felicitous state with good things, and combination of mysterious actions, names or things. Most importantly, these residues are associated with a faith in the effectiveness of combinations that is manifest by innovative change, and a drive to establish the logical developments consequent from combinations.
- *Class II residues: persistence of aggregates* This residue includes expression of social relations that endure, such as between family, places and social groups, for example, the persistence of ideologies. Enduring abstract systems of belief are included, as is the development of new abstract beliefs to inspire the preservation of social relations. Other elements include personifications, relations between the living and the dead, and between the living and the property of the dead.
- *Class III residues: expressing sentiment by external acts* This residue indicates that expression of sentiment by action is a characteristic of the human psyche. It is not a residue that is directly important to the perspective of social equilibrium and policy. However, it has a considerable indirect importance as it supports the proposition that individual personality types can be deduced from individuals' conduct. Expressing sentiment by external acts is associated with individuals rich in Class I residues who favour innovations, and with individuals rich in Class II residues who favour preservation.
- *Class IV residues: sociality* This residue includes subcategories of conduct that reflect ties between individuals that give rise to a community identity. There are several aspects to this residue. They include forming groups within the collective, imitation by individuals to conform, enforcement

of conformity by means of persuasion, censure, force; and hostility to innovation. Other aspects concern the blaming of 'society' for one's woes, a repugnance to the suffering of others, self-sacrifice for the good of others, social ranking, the sentimental need for individuals to be accepted by the group, and ascetism without seeking personal advantage.

- *Class V residues: integrity of the individual and their appurtenances and possessions* This residue complements the residue of sociality. Defence of one's economic interests 'strictly' belongs in this category, but was excluded because interests are of "such great importance in the social equilibrium that they are best considered apart from residues" (Pareto 1935, p. 727). The other aspects associated with this residue include resistance to alterations in the social equilibrium, a perception of equality in inferiors, acts to restore impaired individual integrity (such as remorse and repentance) and acts of real or imagined victims pertaining to offenders (such as vengeance, vendettas, duels).
- *Class VI residues: sex* This residue is not concerned with the sexual appetite. It is concerned with the sentiment about sexual conduct, and the associated positions on the morality of sexual practices, distribution of pornography, denial of pleasure and ascetism. For example, the belief that sex under a variety of circumstances is a forbidden fruit is a general sentiment common to various social forms.

Pareto's discussion of residues in the context of the internal elements of social equilibrium is confined to the first two classes only. Class I residues are important because they are a manifestation of social forces for innovation within society. They reflect individuals' "propensity to take disparate elements out of their familiar context and unite them together in new combinations" (Finer 1966, p. 39). Conversely, Class II residues are generally concerned with preserving an existing social aggregate. One such example is patriotism.

Samuels (1974, p. 77) suggests that Pareto excluded the last four residues from the analysis of social equilibrium because they could be reflected in Class II residues, and that as a result there is a conservative bias in the scheme of residues. There are certainly some aspects of specific association between Class II residues and the Class IV and V residues for sociality and individuality, respectively. However, not all aspects of the last four classes of residues concern the conservation of the collective. Class III residues for expressing sentiment are applicable to all residues, including (and especially) Class I residues. Furthermore, some aspects of Class IV and V residues may inspire individuals and groups to act to preserve or change society depending on circumstances. For example, the social impact of risking one's life and property for the good of others (Class IV) and remorse and vengeance (Class V) depend on the stability of the prevailing social equilibrium, the level of conformity prevailing in the collective, and the form that the prevailing social equilibrium reveals.

The reason for focusing on the first two residues has less to do with intended bias than with a fundamental aspect of Pareto's methodology. Pareto always sought verification of social theory against facts (within the bounds of general uniformities and interferences between social laws). Classification by induction resulted in sociological categories that are not mutually exclusive. Moreover, the individual elements cannot be isolated because they are based on observation of varying levels of social aggregation. As a consequence:

> it is not clear whether they [residues] are individual or social, biological, psychological or culturally determined. The problem seems to be that the six general classes of residues contain mixtures of some of these things. In any event…Pareto's theory of history essentially relies on the first two classes of residues, which are compatible since they are both theories of personality.
>
> (Tarascio 1983, p. 123)

It is simply not feasible to identify the influence of individuals' subjective motivations for action in a collective, and the consequences for collective utility, when all six residues are considered. Consequently, the relationship between residues and social equilibrium is largely limited to the Class I and II residues (henceforth referred to as the personality residues). Furthermore, to the extent that the mechanical analogy defines the rapport between economics and sociology, and the relationship between ophelimity and utility, collective economic and sociological welfare is most readily considered in relation to personality residues. In the process of such analysis, many of the features that Pareto associates with Class III to VI residues, inclusive, re-emerge (especially when considered in the context of the balance of power, as undertaken in Chapter 8).

Derivations

Derivations, unlike residues, are creations of the human psyche. They are derived from residues (Pareto 1935, pp. 885–86) and are produced on an ongoing basis by different individuals and groups. Each derivation rationalises a slightly different combination of sentiments as a correct, actual, equitable, efficient, etc. basis for human actions. They are, therefore, a 'variable' influence on human behaviour in two senses. In the first sense, the form of the derivation may change, even when rationalising a common substantive sentiment. In the second sense, derivations are an instrument that modifies the expected utility from future conduct of the members of the social collectives. As such, they constitute the core of Pareto's theory of ideology.

From the point of view of social equilibrium, four forms or classes of derivations are identified in the *Trattato:*

- *Class I derivations: assertion* Assertions range from an experimental hypothesis (which is useful to science as it will be followed by experimental tests) to blunt presentation of imagined facts (i.e. facts that transcend objective verification).
- *Class II derivations: authority* This implies that the 'truth' of propositions depends on the authority with which the propositions are put. The authority may be from:
  - the individual advancing a proposition[17]
  - tradition and custom
  - Zdivinities
- *Class III derivations: accord with sentiment* This accord relates to the sentiments of the person producing the derivation or accepting it, but it is generally presented as reflecting the sentiments of the majority, or the virtuous, etc. The sentiment may be in accord with:
  - the mind of the individual (e.g. support for majority opinion)
  - perceptions of individual and collective interests
  - metaphysical entities (nature, justice, goodness, humanity)
- *Class IV derivations: verbal proofs* The use of equivocal and indefinite terms to verify propositions. This is important because:
  - the sentiment determines the choice of terms used
  - terms with a number of meanings are used
  - they provide for metaphors, allegories and analogies[18]

Derivations are largely pseudo-logical rationalisations of ethical, religious and moral notions using logic as well as sentiment, and are manifest in words. They may deal with social phenomena in the simplest way and be clearly interpreted by all as subjective value judgements. A simple assertion like 'justice demands that criminals are jailed' is an example of a derivation. At the other extreme, derivations may be presented as scientific theories with unstated or disguised links to sentiment.

The derivation is important because it "expresses clearly ideas that people have in a confused sort of way…[and] lends strength and aggressiveness to the corresponding sentiments" (Pareto 1935, p. 1202). Finer (1966, p. 44) argues that derivations make residues more or less intense.

Elites

The 'elites' element of social equilibrium derives from Pareto's early discussion of social systems, especially in the *Systèmes,* when Pareto was interested in

the sociological ideas of 'selection' and 'social evolution'. The individuals that constitute the individual elements of a social collective are heterogeneous. People have different intellectual and practical capacities, as well as preferences for non-logical conduct that vary in form. In short, "individuals are physically, morally and intellectually different" (Pareto 1935, p. 2025). Pareto contended that individuals tend to associate in groups or classes, and that within each class there is a process of imperfect social selection to identify individuals who are the best at pursuing class interests, i.e. *elites*.

Pareto characterised individuals' association with groups as a dynamic process where, subject to selection via socially determined processes, individuals may move into and out of elites, within and between classes. Elites themselves do not endure; they are replaced by other elites once they can no longer sustain a strong conviction in their beliefs, because they have lost the energy and drive to do what must be done to retain authority. This is discussed in some detail in Chapter 6.

Interests

It has been suggested that Pareto's sociology does not encompass his economics (Cirillo 1979, p. 32). However, this is not supported by the first paragraph of the *Trattato,* where sociology is defined as the synthesis of specialised disciplines including political economy (Pareto 1935, p. 3). Interests, as discussed in the *Trattato,* are presented as being in large part based on the study of economics:

> *Interests.* Individuals and communities are spurred by instinct and reason to acquire possession of material goods that are useful or merely pleasurable…. Such impulses, which may be called 'interests', play in the mass a very important part in determining the social equilibrium.
>
> *The economic sphere.* That mass of interests falls in very considerable part within the purview of the science of economics, on which we should enter at this point had that science not already produced a very important bibliography of its own to which we need merely refer.
>
> (Pareto 1935, p. 1406)

The component of interests not considered by economics concerns public or private spoliation, to use the term in the *Cours* and the *Systèmes* (see Chapter 6), or actions by speculators, rentiers and plutocratic governments in the more refined terminology and analysis contained in the *Trattato* (see Chapter 8). That is, interests also concern economic factors that are not established by the pursuits of *homo œconomicus*. Nevertheless, economics plays a considerable part in the understanding of interests and as such should be regarded as an aspect of general sociology.

The difficulty with fully integrating economics, as the science of interests, within Pareto's general sociology and economic theory, is largely due to unavoidable inconsistencies and overlap between highly deductive theories and highly inductive theories. Therefore, for the sake of clarity, it may be appropriate to maintain separate identities for pure economics and general sociology.

Amoroso (1938, pp. 6–7) recasts the distinction between internal and external forces to achieve this separation. He presents Pareto's analysis of tastes and obstacles in the *Manuale* as relating to 'external' forces, not the 'internal' force of interests as specified in the *Trattato*. This makes unconventional use of the internal/external division to demonstrate (the Paretian proposition) that the actual economic system is not as mechanical and deterministic as presented in economic theory, but something that is subject to interaction with the internal elements of the social equilibrium. The real economy is the outcome of interaction between the internal or 'deterministic' forces of economic theory and the external or less deterministic forces of politics and history. A more conventional Paretian expression of the same position is that the economic system, and social equilibrium in general sociology, are influenced by interaction between all the internal elements of social equilibrium, one of which is economic (i.e. 'interests'). However, Amoroso's formulation is particularly useful for comparing Pareto's mechanical analogy in economics and sociology, and has been used in Chapter 4.

3.4 The rapport between pure economics and general sociology

Amoroso (1949, pp. 9–13) establishes that there are three groups of equations that define Pareto's general equilibrium. These groups of equations specify that:

(a) *homo œconomicus* moves in response to the forces of ophelimity;
(b) economic movement is constrained by voluntary exchange, budget limitations, requirements for market clearing and technical limitations (i.e. production is subordinate to certain technical conditions); and
(c) goods and services available are objective elements (i.e. a change in the quantity of a good or service requires consumption or production).

Under free competition, and using the terminology of the *Manuale,* prices are taken as independent parameters, and the system of general equilibrium is bounded by the interaction between the forces associated with 'tastes' and 'obstacles'. That is, interaction occurs between the 'forces' associated with an individual satisfying their tastes—point (a) above—and the 'forces' that are obstacles to be overcome—points (b) and (c) above—for the individual to satisfy their tastes.

However, when conduct is non-logical, even when that conduct relates to a concrete economic phenomenon, the precise system of equilibrium specified in pure economic theory loses its close correspondence with reality.

In the *Cours,* Pareto tried to accommodate this by introducing a discussion of social evolution into applied economics. But as Pareto's emphasis shifted to the study of non-logical conduct in a way that made hypothetical propositions possible, he extended the mechanical analogy to his sociology.

When Pareto's mechanical analogy has been considered by economists, the sociological aspect of the analogy is usually ignored. For example, Bruna Ingrao's (1991) "L'Analogia Meccanica nel Pensiero di Pareto" provides a fine treatment of the greater care with which Pareto applied his mechanical analogy to economics after publication of the *Cours.*[19] In another work, she and a co-author make it clear that Pareto's recourse to sociology was made "in order to correct the acknowledged limits of the rational mechanics of *homo œconomicus"* (Ingrao and Isreal 1990, p. 136). In sum, these two papers appear to regard the mechanical analogy in Pareto's thought as confined to economics, with his sociology only mentioned briefly and dismissed as "quicksand".

However, there is no doubt that the internal elements of social equilibrium are elements of the mechanical analogy in Pareto's thought. In the *Trattato,* the mechanical analogy in sociology is given extensive consideration (Pareto 1935, pp. 65–74). In a social context, 'force' is defined as a capacity to influence an economic or social situation, and social conditions are regarded as tied or bonded, just as a system of material points is bonded, and these factors are considered in the context of virtual movements.

Within this sociological context, Pareto endorses the "hypothesis of determinism", as virtual movements in society enable the 'possible' to be distinguished from the 'impossible'. However, in the sociological context, the determinism under the mechanical analogy is constrained by his methodology of science. That is, it must be verified by experimental observation. As expected utility from social conduct is generally not realised (i.e. conduct is non-logical, and the utility field is potentially unstable), then social phenomena are very complex, and sociological formulation cannot be highly deterministic. For this reason, the sociological mechanical analogy differs in form to that utilised in economics.

> In the economic system the non-logical element is relegated entirely to tastes and disregarded…. One might wonder, whether…we might not relegate the non-logical element to the residues…and proceed to examine the logical conduct that originates in the residues. That, indeed, would yield a science similar to pure, or even to applied, economics. But unfortunately the similarity ceases when we come to the question of correspondences with reality…. In activity based on residues human beings use derivations more frequently than strict logical reasonings…. Residues are not, like tastes, merely sources of conduct; they function throughout the whole course of the conduct developing from the source, a fact which becomes apparent in the substitution of derivations for logical reasonings.
>
> (Pareto 1935, pp. 1442–43)

Perhaps the simplest way to consider the rapport between pure economic theory and general sociology is to consider the general aspects of the mechanical analogy that they both share when applied to a study of economic actions. This means that concrete economic conduct is sliced into two sections, a logical slice (i.e. when conduct is repeated and enduring under given circumstances) and a non-logical slice (i.e. when conduct is not repeated and does not endure under given circumstances). These aspects can be simply considered in tabular form, as shown in Table 3.1.

Pareto's social equilibrium occurs when each of the analytical elements of the mechanical analogy for pure economics and general sociology interact. Since the equilibrium points for each of the analytical elements in isolation are not the same, economic and social equilibrium moves and fluctuates through time.

Table 3.1 Pareto's mechanical analogy for economic and sociological theory: applied to the study of economic conduct

Elements of the analogy	*Pure economics*	*General sociology*
Interdependence of elements	*Homo œconomicus*	Residues, derivations, elites and interests
Force	Ophelimity measured (cardinally or ordinally) in relation to coordinates in commodity space	Utility (i.e. ophelimity adjusted by a utility coefficient) measured in relation to coordinates in commodity space when the balance of political power is stable
		Utlity assessed against the degree of conformity in social conduct (as examined in Chapter 8)
Constraints	(i) Other individuals' wants	(i) Other individuals' wants, including utility interdependence (discussed in Chapter 7).
	(ii) Individuals' budgets and voluntary exchange	(ii) Aggregate budget constraint for the collective, but individuals or groups may vary their budget constraint by force or coercion through involuntary exchange.
	(iii) Market clearing under fixed price parameters	(iii) No assumption of market clearing
	(iv) Technical limits of production	(iv) Technical limits of production
Uniformities or general laws	Equilibrium is deterministic and stable (stable ophelimity field)	The form that equilibrium takes is not stable over time. However, general regularities associated with the irregular cyclical fluctuations are investigated, and these regularities can be expressed without reference to time.

> the single actions and reactions are compounded and interfere in a thousand ways and from their contrast arises the social movement. Analysing the single interferences, Pareto deduces the oscillatory character of this movement. The single oscillations constitute the *economic and social cycles* and form the warp on which are interwoven the vicissitudes of the history of human society.
>
> (Amoroso 1938, p. 13)

It is important, however, to recognise that the form of the economic cycles was not Pareto's primary theoretical concern. He was primarily concerned about the more fundamental facts of their existence, their irregularity (in period and amplitude) and the general interdependencies that constitute this movement.

3.5 Rational fools in relation to logical and non-logical conduct

Amartya Sen (1982) has been critical of the development of economic theory where rationality is defined solely in terms of consistency in the pursuit of one's own interests. One's own interests are regarded as a subset of human motivation, and to focus on them at the expense of other motivations is to develop models based on the conduct of 'rational fools'. Pareto's development of theory around the distinction between logical and nonlogical conduct also attempts to investigate a range of human motivations, including individuals' concerns with the interests of other members of society. Consequently, a comparison of Sen's proposed approach to extending theory beyond the study of rational fools with Pareto's extension of theoretical systems to embrace non-logical conduct is instructive.

Sen defines rationality for the purposes of 'definitional egoism' in terms of consistency of revealed preferences:

> A person's choices are considered 'rational' in this approach if and only if these choices can *all* be explained in terms of some preference relation consistent with the revealed preference definition, that is, if all his choices can be explained as the choosing of 'most preferred' alternatives with respect to a postulated preference relation. The rationale of this approach seems to be based on the idea that the only way of understanding a person's real preferences is to examine his actual choices, and there is no choice-independent way of understanding someone's attitude towards alternatives.
>
> (Sen 1982, p. 89)

As this is generally consistent with Pareto's focus on the fact of choice,[20] it is useful to consider Sen's critique of rational fools, and determine whether it applies to Pareto.

Sen regards the rationality of revealed preference as weak, because it

does not admit behaviour based on 'commitment'. A commitment is based on ethics

and moral reasoning, need not reflect pursuit of self-interest, and has consequences for other members of society. The rationality of revealed preference does not admit commitment for three reasons:

(i) it focuses on consequences;
(ii) it evaluates acts rather than the value of rules of behaviour; and
(iii) evaluations relate solely to one's 'own interests' (Sen 1982, p. 104).

However, Sen's concerns implicitly relate to a 'single discipline' view of conduct. When the same economic conduct is considered in terms of its logical and non-logical attributes, the focus on the consistency of consequences means that economic conduct that fails this test must be considered in relation to subjective factors other than one's own interests. In fact, the Paretian scholar would not hesitate to suggest that Sen is working with a mixture of logical and non-logical concepts, especially when he notes that his concern is with the assumption of the

> invariable pursuit of self interest in each act. Calling that type of behaviour rational, or departures from it irrational, does not change the relevance of these criticisms, though it does produce an arbitrarily narrow definition of rationality. This paper has not been concerned with the question as to whether human behaviour is better described as rational or irrational. The main thesis has been to accommodate commitment as part of behaviour. Commitment does not presuppose reasoning, but it does not exclude it.
>
> (Sen 1982, p. 105)

The critical difference with Pareto is Sen's view that 'commitments' can be considered by establishing ranks of various classes of meta-ranking (i.e. ordering types of preferences such as preferences for social outcomes, preferences for one's personal outcomes and actual outcomes). However, meta-ranking of 'commitments' may be unstable over time, and their policy relevance may be reduced as the rankings may rationalise current or recent behaviour which will not continue into the future.[21] While use of multiple related preferences is clearly Paretian (e.g. the division between ophelimity and utility), Pareto's first consideration was always the relation between the theory and social fact. Since all behaviour can be rationalised as logical by inserting the appropriate ethical axiom, Pareto's test of logic is the stability of that choice, and hence the need to include induction. If the subjective intent of actual choice does not generally match the objective end of real choice (i.e. if actual preferences are unstable), the basis for suggesting that meta-rankings have a relevance to conduct, including public policy, is weakened.

3.6 Economic policy: logical and non-logical conduct

When variable social influences on the economic phenomena are acknowledged, it is possible that economic actions conflict with those of *homo œconomicus.* Pareto was unequivocally aware of this. In his 1907 *Metafisica Economica* he argues that "[i]n reality, prices depend on all circumstances without exception, on the market, on production, on the social state, politics, etc." (Pareto 1988, p. 56).

This has major implications for the relevance of pure economic theory to public policy. Consider the case (so important to Pareto when he was a young political activist) of free trade. In the *Cours,* Pareto reproduced the Ricardian law of comparative costs within a general equilibrium framework.[22] Free trade was advocated solely on the basis that it maximised ophelimity and because protection caused the destruction of wealth (Pareto 1949b, p. 259). In the *Manuale,* he concluded that the economist who recommends policy measures based on this analysis alone is a poor theorist:

> He is not theoretical enough because he is neglecting other theories which should combine with his own in order to make a judgement in this practical case. One who praises free trade, restricting himself to its economic effects, is not constructing a faulty theory of international commerce, but rather is making an incorrect application of an intrinsically true theory. His error consists in disregarding other political and social effects, which are the subject of other theories.
>
> (Pareto 1971c, p. 14)

When these comments are followed through to the *Trattato,* it is found that Pareto has two concerns. First, economists' implied acceptance of wealth maximisation reflects a sentimental or non-logical judgment that wealth maximisation is utility maximising; and second, it cannot be assumed *a priori* that policies based on economic proofs alone will maximise wealth as suggested.

> A forward step along the scientific path was taken when the theories of mathematical economics supplied a proof that, in general, the direct effect of protection is a destruction of wealth. If one were to go on and add an axiom, which is simply taken for granted by many economists, that any destruction of wealth is an 'evil', one could logically deduce that protection is an 'evil'. But before such a proposition can be taken for granted, the indirect economic effects and the social effects of protection have to be known…. we find that protection transfers a certain amount of wealth from a part, *A,* of the population to a part *B,* through the destruction of a certain amount of wealth, *q,* the amount representing the costs of the operation. If, as a result of this new distribution of wealth, the production

> of wealth…increases by a quantity greater than *q,* the operation is economically beneficial Th[is] latter case is not barred *a priori.*
>
> (Pareto 1935, pp. 1545–46)

The main reason for this conclusion is that the redistribution of wealth generated by protection may improve social selection, which is of course dependent on the form of the social order prevailing. For example, if the elites of society (part *A* in the above quote) are dominated by conservative Class II residues, then the elite elements of part *B* of the population, dominated by Class I residues, may be more energetic and entrepreneurial than the population of part *A,* and make more effective use of wealth.

The importance of sociological influences on economic activity is also evident from Pareto's sociological analysis of speculators and rentiers (Pareto 1935, p. 1644). At this point all that needs to be noted is that these types do not correspond to *homo œconomicus* alone. Instead, economic actions are more influenced by instinct as well as by reason. This is very clear from the discussion of savings in relation to interest:

> To try by reasoning to convert a coward into a brave man or a spendthrift into a saver…is…a waste of breath; and that is not to be gainsaid by marshalling statistics, as people have tried to do in order to show that savings is an essentially logical act and that the amount of savings is determined primarily by the interest that is to be had on them. …All human conduct based on instinct may be more or less modified by reasoning, and it would be going too far to assert that that does not also apply to conduct based on the instinct for saving. But that does not prevent that instinct from being the primary element in saving, which remains none the less a non-logical act.
>
> (Pareto 1935, pp. 1560–61)

When factors such as these are recognised, it is evident that Pareto provides a very sophisticated understanding of economic phenomena, many aspects of which were subsequently (and independently) developed by leading theorists working within the economic discipline. For example, Vincent Tarascio's (1969b) "The Monetary and Employment Theories of Vilfredo Pareto" established certain similarities between Keynes' and Pareto's studies of economic fluctuations. This, of course, depends on Pareto's economic and sociology of economic phenomena being considered, not just his economics based on logical deductions from a field representation of *homo œconomicus.*

3.7 Conclusion

Pareto's mechanical analogy defines the rapport between pure economics and general sociology. The rapport is a consequence of the specification of

'force' in each discipline, where economic force is represented by a stable and enduring ophelimity field and social force is represented in a potentially unstable utility field. It constitutes an intriguing analysis of stability and instability that demonstrates varying degrees of determinism. The key to this analysis lies not only in the distinction between logical and non-logical action, but also in Pareto's methodology (as reviewed in Chapter 2), especially the distinction between form and substance.

Table 3.2 The mechanical analogy: an extract from the *Cours*[23]

Mechanical phenomenon	*Social phenomenon*
Given a certain number of solids, we study their relations of equilibrium and movement abstracted from the other properties. We obtain thus a study of mechanics.	Given a society, we study the relations of production and wealth between men, abstracted from other circumstances. We obtain thus the study of political economy.
The science of mechanics is divided into two others. If we consider inextensibly connected material points we obtain a pure science, rational mechanics, which studies in an abstract way the forces of equilibrium and movement. The easiest part of the science is equilibrium. D'Alembert's principle, considering the forces of inertia, enables the reduction of the dynamic problem to a static one.	The science of political economy is divided into two others. If we consider *homo œconomicus* who acts only as a result of economic forces, we obtain political economy, which studies in abstract terms ophelimity. The only part of this which is well known is static equilibrium. There may be a principle for economic systems analogous to D'Alembert's, but at present our knowledge is very poor. The theory of economic crisis offers an example of dynamic study.
From rational mechanics comes applied mechanics, which is a little closer to reality, considering elasticity, friction, etc.	From pure political economy comes applied political economy, which does not consider solely *homo œconomicus*, but also other models of humankind closer to reality.
Real solids not only have mechanical properties. Physics studies the properties of the phenomena caused by light, electricity and heat. Chemistry studies other properties. Thermodynamics, like other sciences, studies some of these properties in detail. All these sciences constitute the physical-chemical sciences.	Men and women have other characteristics which are studied by other particular sciences, such as law, religion, aesthetics, the organisation of society, and so on. Some of these have quite a high level of development, others on the contrary, have not. As a whole they constitute the social sciences.
If we wish to consider a concrete fact, all these sciences must be taken into account because they have been separated through a process of abstraction.	

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Mechanical phenomenon	*Social phenomenon*
In reality, solids with only mechanical properties do not exist. It is a mistake to assume the existence of concrete phenomena subject only to mechanical forces, abstracted from chemical ones, as it is to assume that concrete phenomena may be subtracted from the laws of rational mechanics.	In reality, persons who are subject only to economic stimuli do not exist. It is a mistake to assume the existence of the concrete phenomenon subject only to economic motivations, abstracted from other considerations, just as it is to assume that a concrete phenomenon may be subtracted from the laws of pure economics.

The practice differs from the theory precisely because practice must take into account a quantity of secondary characters which are not studied in the theory. The relative importance of primary and secondary characters is not the same from the general point of view of science and from the particular point of view of a practical operation. Syntheses have sometimes been attempted. An attempt has been made to find the cause of all phenomena in:

The attraction of atoms. An attempt has been made to reduce to all physical and chemical forces from a fundamental unity.	Utility, of which ophelimity is simply a type. An attempt has been made to explain all phenomena in terms of biological evolution.

These are all interesting studies. But we must resist these hypotheses and not go far from the solid basis of experience.

Source: Pareto 1971, pp. 645–46.

4 Determinism, ideology and the mechanical analogy[1]

4.1 Introduction

Pareto's approach to equilibrium theory has been criticised on a number of counts. Two important criticisms are that it is unjustifiably deterministic (Stark 1965; Mirowski 1989), and that such determinism is not free of ideological content (Dobb 1973). The purpose of this chapter is to consider these criticisms.

Sections 4.2–4.5 relate to the critique against mechanism and determinism. The issue is introduced through Werner Stark's "In Search of the True Pareto" (1965) and Philip Mirowski's representation of Pareto in his study, *More Heat than Light* (1989). In his book, Mirowski presents economics as social physics and Pareto is portrayed as in "some ways, the most ruthless proponent of the physical metaphor" (Mirowski 1989, p. 221). The fundamental elements of Mirowski's thesis in regard to neoclassical value theory are presented in Section 4.2. The evidence used to critique Pareto for his use of the 'physical metaphor' is examined in Section 4.3. The mechanical analogy of the *Cours* is examined in Section 4.4, and its applicability is found to be significantly qualified by Pareto. In Section 4.5 it is accepted that much of the evidence cited by Mirowski in his case against Pareto is factual. However, his critique can only be sustained when the methodological context of Pareto's mechanical analogy is ignored and replaced by the 'Laplacian dream' of determinism, which Mirowski attributes to the neoclassical paradigm.

Section 4.6 deals with the supposed ideological undercurrent when using mechanistic systems like equations of general equilibrium. It focuses on Dobb's interpretation of Pareto on the cause of value in *Theories of Value and Distribution since Adam Smith* (1973). Dobb suggests that, in spite of heightened abstraction, Pareto's system of general equilibrium equations still suggests an order of determination that is ideologically influenced. Pareto's views on theories of value are considered in the light of this critique, with the relationship between fact and theory given some emphasis. It is concluded that Dobb's thesis, like Mirowski's, is flawed since it disregards Pareto's methodology.

In Section 4.7 it is concluded that studies of Pareto's works will almost invariably misunderstand or misrepresent these works if they ignore Pareto's methodology for the social sciences.

4.2 The mechanical analogy and Laplacian determinism

Stark (1965) contends that a truly scholarly person is free of wishful thinking in regard to the *facts* being observed and the *results* that a study of these facts produces. In respect to both these elements, Pareto is characterised as biased because his "social science *had to be* something like mechanics whether the facts warranted this conceptualisation or not" (Stark 1965, p. 49).

Stark is undoubtedly correct to associate Pareto's theoretical instruments for the study of society with mechanics. Throughout most of his discussion on methodology, Pareto is very explicit in his analogy between pure economic theory and rational mechanics. Bousquet (1994, p. 41) suggests that Pareto's system of general sociology was modelled on his economic system. As a consequence, and as outlined in Chapter 3, the mechanical analogy also extends to his sociological theory.

Stark's underlying position is that this analogy is not justified by a comparison with the facts. It is simply the result of

> the unconscious metaphysic with which he [Pareto] set out; it was, to be blunt about it, the initial prejudice—prejudice in the fullest and narrowest sense of the word—which spoiled his work as irretrievably as other prejudices spoiled the work of other writers. Pareto was simply the last of the many 'Newtons of the moral world'.
>
> (Stark 1965, p. 50)

The assertion that Pareto's endorsement of the mechanical analogy is the result of an initial unconscious metaphysic requires a knowledge of Pareto's psyche which we do not possess. Instead the 'truly scholarly' researcher, to paraphrase Stark, would evaluate the merits of the mechanical analogy relative to other approaches.

However, Stark simply notes that Pareto's artificially constructed mechanistic model constitutes a self-contradictory image of a social science, and that Pareto failed to add anything significant to our knowledge of social life, and even inhibited the advancement of economic knowledge (Stark 1965, p. 50). While no explanation is explicitly provided as to why Pareto adds nothing to our knowledge of social life, from Stark's discussion of Pareto's inhibiting influence on economic knowledge it is possible to infer that his concern is that determinism is false because it assumes that behaviour is rational and ahistorical.

For example, Stark comments that the "pan-mechanistic Paretian mind" possessed by Pareto's disciples (i.e. all orthodox economists) is unable to conceive of analysing 'irrational' factors which determine demand. Veblen,

in contrast, was able to consider this through his "conspicuous waste" concept. Furthermore, the "pan-mechanistic Paretian mind" cannot comprehend historical and local variations because "the laws of economics are exactly like the laws of physics; once true, true forever" (Stark 1965, p. 52).[2]

Mirowski's thesis is essentially the same, though it adds an important new dimension to the critique because it is supported by an extensive study of the development of physical theory and economic theory, focusing on the use of 'field' mathematics in each discipline.

So that his arguments are not lost to the usual subtleties of discourse on the development of theory, Mirowski goes as far as stating that the first generation of neoclassical economists "did not imitate physics in a desultory or superficial manner; no, they copied their models mostly term for term and symbol for symbol, and said so" (Mirowski 1989, p. 3). While he generally refers to the physical metaphor in economics, he makes it clear that such a representation is too subtle because we are really concerned with "the wholesale piracy of physics by a doughty band of economists" (Mirowski 1989, p. 4).

It is therefore somewhat ironic that Pareto is chided by Mirowski for his 1900 observation that there is no identity between mechanics and economics, but merely a resemblance (Pareto 1953b, p. 185). In the *Trattato,* in particular, the limit of the mechanical analogy is very specific:

> In mechanics there is an analogous situation—analogous, notice, not identical—where two forces are acting upon a physical point…. But an analogy is not a definition; and we should be deliberately exposing ourselves to ready and frequent error were we satisfied with such an analogy to represent the social or economic equilibrium…. by analogy, not by identity, we may likewise use the term *equilibrium* for an economic or social situation.
>
> (Pareto 1935, p. 66)[3]

After the accusation of wholesale piracy, Mirowski criticises Pareto for not fully utilising the mechanical analogy. "The error of Pareto and every other historically sophisticated neoclassical theorist is to think that every aspect of the physics metaphor is equally expendable" (Mirowski 1989, p. 272). To correct this general 'error' of omission, Mirowski considers the role of 'conservation' principles in physics, and examines the implications of extending these principles to economic theory.

The Mirowski thesis: "neoclassical value theory as Laplacian determinism"

To appreciate Mirowski's critique of neoclassical value theory, it is first necessary to summarise his thesis on the physical metaphor.

Mirowski's thesis centres on what he calls the Laplacian dream (Mirowski 1989, pp. 26–30). He characterises this as the aspiration to model the entire universe at any point in time as a single mathematical equation. That is, its goal is a universal deterministic equation, named after Pierre-Simon Laplace,[4] that is indifferent to the passage of historical time. This notion is referred to, in this chapter, as Laplacian determinism.

Laplacian determinism is presented by Mirowski as significant to the development of physics because it was the cause of the paradigm switch in the study of physical phenomena, from the study of substances to the study of fields. Associated with this switch is a heightened level of mathematical formalism. This formalism facilitated the replacement of the particle as the cornerstone of physical theory with coordinates of multidimensional space.

Coincident with Laplacian determinism was the search for conservation principles in physics generally, and more specifically, the conservation of energy. The abstract nature of energy, and an expectation that something was conserved in physical processes, meant that the meaning of energy remained vague for some time. However, by the mid-nineteenth century the modern understanding of energy was outlined:

> the term *energy* is used to comprehend every affection of substances which constitutes or is commensurable with a power of producing change in opposition to resistance…. All conceivable forms of energy may be distinguished into two kinds, actual or sensible, and potential or latent. *Actual* [kinetic] *energy* is a measurable, transferable and transformable affection of a substance, the presence of which causes the substance to change its state in one or more respects; by the occurrence of which changes, actual energy disappears and is replaced by *potential energy*.
>
> (Rankine, cited in Mirowski 1989, p. 53)

Based on Lagrange's and Hamilton's invariant set analysis of vector fields and scalar (or potential) functions, the field paradigm was utilised to explain the conservation of energy, where a field is defined as "a spatial distribution of energy that varies with time" (Mirowski 1989, p. 66). It cannot be viewed as a property of a particular substance or particle at a specific coordinate of the field. Instead, "energy is constitutive of the field, and is in the field, but nothing more can be said of it" (Mirowski 1989, p. 229).

Energy is conserved when the movement of a particle along a path back to its original position does not alter kinetic energy, and when the force that moves a particle from one coordinate to another is independent of the path it takes. In Mirowski's terminology, conservation of energy requires an irrotational field where force, at each spatial coordinate, is verified as 'path-independent'. To verify path independence, the kinetic energy function is integrable (as verified by equation [4] in Appendix 4.1 below).

Mirowski contends that neoclassical value theory is based on the physical equations for energy and equilibrium; only the names of the variables are changed. Kinetic energy becomes the change in an individual's budget constraint from exchange; potential energy becomes utility (Pareto's ophelimity); physical force is represented by the equality in economic theory between marginal utility and price, and coordinates in space are replaced by commodity bundles (i.e. coordinates in commodity space). This representation is briefly summarised in Appendix 4.1.

As the properties of marginal utility were presented as a metaphor for force in rational mechanics, Mirowski contends that conservation principles from physics are also required so that economic force may be examined as a vector field. In this regard, integrability of system of partial differential equations that represent change in each individual's budget constraint from the exchange process, establishes that price vectors implied by utility at all points in commodity space are 'conserved'. That is, integrability establishes that price vectors in the utility field are path-independent.

The early neoclassical economists did not consider the question of path-dependence in commodity space. Instead, equilibrium was derived using two additional assumptions from outside the physical metaphor: first, that competition results in each commodity being exchanged at one price; and second, that total expenditure is fixed because outlays are subject to a budget constraint. Mirowski's concern is that these assumptions conceal the need to consider whether the equilibrium would be conserved over time by establishing that the utility field is path-dependent. As Mirowski notes, this may explain why the integrability test in economics, first established by Antonelli in 1886, was ignored by the economics profession[5] until the 1930s.

By ignoring the 'integrability' question, Mirowski contends that neoclassical economists were unable to realise that their theory was a less-than-general theory of the economy, and that they remained dreamers in search of a universal law, long after it had been abandoned in physics with the introduction of non-linear dynamic systems:

> But given that the neoclassicals were incapable of confronting the issues of conservation principles, of integrability, and of invariance, it should come as no surprise that they were left high and dry by the retreat of atomistic determinism in science. As long as the Laplacian Dream was their dream, they clutched neurotically at their portrait of persons as irrotational mental fields suffusing an independent commodity space, as science ebbed ever further away towards a world subject to change, diversity, and indeterminacy, and at one with the observer.
>
> (Mirowski 1989, p. 275)

4.3 Mirowski's critique of Pareto on exchange theory

Mirowski's contention that conservation of price vector in the utility field is

important in economics is not at issue here. There is a considerable gain from verifying that marginal utility at every point of the utility field is dependent on, or independent of, virtual movements within the utility field. The specific concern addressed here is Mirowski's failure to recognise that Pareto's treatment of the integrability question was deficient in technical terms only because the study of non-logical conduct was designed to study what Mirowski terms path-dependent utility fields.

Like Mirowski, Pareto examined the integrability question. Unlike Mirowski, he regarded the matter as a relatively minor question (Chipman 1976, p. 83). Perhaps as a consequence of this, Mirowski's treatment of Pareto on the matter is very severe and melodramatic.[6] In regard to the substantive matters raised, Mirowski finds that Pareto was

1 unable to satisfy the mathematician Hermann Laurent in his letters between 1899 and 1902 on the integrability question;
2 never completely understood the problem; and
3 trivialised the issue.

The first two of the above substantive points made by Mirowski can be sustained. Although Laurent's letters to Pareto have not survived, it appears from Mirowski's citation of Laurent's letters to Walras that Laurent asked Pareto whether changes in constrained expenditure were integrable (at least this is what Mirowski plausibly deduces was asked). Mirowski argues that a satisfactory response from Pareto would have to address the following three points:

> (a) did price vectors generally conform to the conditions for a conservative vector field…(b) without the law of one price…and a host of other auxiliary conditions, wouldn't the budget constraint end up as non integrable; and (c) if the energetic metaphor were to be valid, the integral of the budget is directly linked to the integral of utility (or raretè, or ophelimity, or any of the other redundant euphemisms) through the instrument of the conservation principles.
>
> (Mirowski 1989, p. 247)

Pareto did not consider the query in these terms. Rather, when he did write about the issue of integrability (Pareto 1971b; 1971c), he associated it with the order in which goods are consumed, not infinite virtual movements in commodity space, and his analysis was mathematically flawed. Pareto's early lack of association of Laurent's concerns with conservation issues or the stability of the ophelimity field is evident from the following footnote in his 1902 article "Di Un Nuovo Errore Nello Interpretare Le Teorie Dell' Economia Politica", where ϕ is total ophelimity and φ is elementary ophelimity:

> another critic, w.ho…observing that the f are the partial derivatives of ϕ, and that in the equation
>
> $$dq_a + p_b\,dq_b + p_c\,dq_c + \ldots = 0 \qquad [A]$$
>
> the p_b p_c …multiplied by a convenient factor, are the partial derivatives of the integral of equation [A], from which he concludes that ophelimity is nothing but an integral of equation [A]. Such reasoning leads to the conclusion that if two curves have a point of tangency, they are identical; and how wonderful this new discovery is!
>
> (Pareto 1982i, p. 491)

Chipman (1971; 1976, pp. 80–86) examined Pareto's treatment of integrability in some detail. He found, among other errors, that Pareto had an imperfect appreciation of the distinction between the existence of an integrating factor and the case where a system of partial differential equations is an exact differential, where the integrating factor is one. This confusion was further complicated in his later works on integrability, when he discussed the complexities of measuring ophelimity in relation to the order of consumption (Chipman 1971, p. 324).

However, to trivialise something implies two elements. First, the issue under consideration is examined in a trivial way, and second, the issue itself must be non-trivial. Mirowski demonstrates that integrability was not a very important issue for Pareto. However, he does not demonstrate that the issue is non-trivial in the context of Pareto's mechanical analogy, with appropriate regard for its interdisciplinary context.

It is the contention in this chapter that the triviality or non-triviality of the integrability question, and timeless determinism in economics more generally, depends on the methodology of science and the theory itself. Following Tarascio's (1968) distinction, theories are a 'method' or a tool of a science (as discussed in Chapter 3), and the appropriate scope and application of theories must be viewed in the context of the 'methodology' within which they function (as discussed in Chapter 2). When the integrability question is considered in the context of Pareto's methodology, it is clear that the issue is not as significant as Mirowski suggests.

The response to Mirowski's critique of Pareto is considered in two parts. First, Pareto's mechanical analogy as outlined in the *Cours* will be examined. Second, and more importantly, the issues are considered in the context of Pareto's methodology and the scope of economics delineated in the *Manuale*.

4.4 The mechanical analogy in the *Cours*

As indicated in Chapter 3, in the *Cours* the mechanical analogy is used extensively (see especially Appendix 3.1). In relation to value theory, the elements of the analogy as outlined by Pareto (1971a, pp. 642–45) are:

- *homo œconomicus* is analogous to a particle *(punto materiale)*
- commodities consumed are analogous to spatial coordinates
- economic force (relative elementary ophelimities, i.e. price) is analogous to the force of inertia (i.e. the product of mass and acceleration)
- total ophelimity is analogous to the 'function of force', designated in mechanics as 'potential energy'

In general, this accords with Mirowski's portrayal of neoclassical value theory. Mirowski objects to Irving Fisher's association of the individual in economics with a particle in physics, because the individual in value theory is not 'a substance' but is "manifest by his psychology, and his psychology is only portrayed as a field of preferences" (Mirowski 1989, p. 229). However, Pareto's *homo œconomicus* is not the substance of a human, or even the complex psychology of a human, but a one-dimensional abstraction that responds only to economic force to maximise ophelimity. This is clearly amenable to 'field' representation in commodity space.

Similarly, the respective association of commodities, elementary ophelimity, and total ophelimity, with spatial coordinates, force, and potential energy, all accord with Mirowski's discussion of the physical metaphor. However, the representation of total ophelimity as the mechanical equivalent of the 'function of force' or 'potential energy' in the *Cours* (which is the same as equation [2] in Appendix 4.1)—and why it is not presented as a consequence of equation [1]–requires further consideration. To do this, Pareto's analogy needs to be considered in some detail.

Pareto's specific point of reference for the mechanical analogy in economic theory is 'the principle of Alembert', where the equilibrium force of inertia is represented statically within "a generic material system in which the agents of force counterbalance each other by virtue of their bonds" (Palomba 1971, p. 17). The significance of this principle, according to Pareto, is that it permits the reduction of inertia, a dynamic phenomenon, to a problem of statics (Pareto 1971a, p. 645). If the reduction of dynamic phenomena to statics implies conservation, the principle of Alembert needs to fully apply to value theory if equilibrium prices are to be conserved.

However, in the *Cours,* economic equilibrium is presented as a poor analogy of the principle of Alembert because "our understanding of the subject is among the most imperfect" (Pareto 1971a, p. 645). In fact, economics "only gives us a glimpse" of a principle analogous to Alembert's (Pareto 1971a, p. 642). The reasons for the imperfect analogy are (Pareto 1971a, pp. 642–43):

1 the functional form of elementary ophelimity is not known (whereas in mechanics, it is the product of mass and acceleration); and

2 elementary ophelimity is the partial derivative of ophelimity only when ophelimity is shown to exist.

Point 2 suggests that total ophelimity need not exist. The reasons underlying this were outlined in Pareto's 1892–93 article "Considerazioni Sui Principii Fondamentali Dell'Economia Politica Pura", where he noted (using Jevonian terminology):

> None of us has a clear conception of the total utility of eating, drinking, being clothed, and having a house to protect us; we understand the advantages of these things only in terms of small variations: more or less. In other words, our minds are only able to absorb the notion of the final degree of utility.
>
> (Pareto 1982a, pp. 84–85)[7]

In "Considerazioni Sui Principii Fondamentali Dell'Economia Politica Pura" and the *Cours,* total ophelimity is shown to exist when the elementary ophelimity of a good depends on that good only. In such a circumstance, ophelimity self evidently is path-independent; the individual's elementary ophelimity for a good is only influenced by the marginal acquisition of that good (and is independent of the consumption of all other goods). However, this is only regarded as an approximation, as elementary ophelimity associated with one good generally depends on other goods as well (because goods may be complementary or substitutes). In this general case, total ophelimity need not exist (Pareto 1971a, p. 134).[8] Pareto's solution, reflecting the above quote, is to focus on infinitesimal changes. He defines individuals' quantities of goods in two components. A fixed component, which is an initial endowment, and a variable component, which is the excess demand (i.e. consumption less initial endowment). Elementary ophelimity is expressed as a function of excess demand only, and not as a function of the total quantity of the goods consumed. That is, when r_a r_b, r_c, are the excess demand for goods a, b, and c, and q_a, q_b, q_c are initial endowment quantities,

$$x_a = q_a + r_a \qquad x_b = q_b + r_b \qquad x_c = q_c + r_c$$

Elementary ophelimity is revised to $\Psi_a (r_a, r_b, r_c)$, from $\Psi_a (x_a, x_b, x_c)\, dx_a$; and the change in total ophelimity is expressed as $dU = \Psi_a\, dr_a + \Psi_b\, dr_a + \Psi_b\, dr_c$.

This does not imply that Pareto regarded equilibrium as independent of time, as he acknowledged the risk that equilibrium could be unstable. Moreover, the forces associated with elementary ophelimity are represented as a "tendency" (Pareto 1971a, p. 642), prices are given and equilibrium is potentially "*unstable* at the limit when the conditions of equilibrium are not valid except for an infinitely small change" (Pareto 1971a, p. 143).[9]

Given these formal limits of his mechanical analogy as outlined in the *Cours,* it should be no surprise that integrability issues did not figure in the manner that Mirowski suggests they should. Pareto's primary concern was the relationship between economic theory and real economic phenomena (including productive services), and in this regard theoretical equilibrium is only an approximation.

> In reality, equilibrium is never reached, since, as one approaches it, it alters continually because the technical and economic conditions of production modify themselves. The real state is, therefore, that of continued oscillation around a central equilibrium point, which itself moves.
>
> (Pareto l971a, p. 177)

4.5 Integrating the mechanical analogy with the economic 'fact of choice'

As outlined in Chapter 3, Pareto's post-*Cours* focus on the fact of choice was complemented by a growing interest in non-logical conduct. The combined effect of these influences was the development of two distinct disciplines; one concerned with path-independent ophelimity (the economics of the *Manuale),* the other concerned path-dependent utility (the *Trattato).*

Mirowski suggests that one means of implicitly assuming conservation in neoclassical economics is the elimination of any divergence "between the anticipation and realisation of utility" (Mirowski 1989, p. 273). By not directly addressing the conservation question, but doing it indirectly by various means including the equality between anticipated and realised utility, neoclassical economics is portrayed as a general theory of economic phenomena when it does not possess this generality.

However, Pareto's focus on the 'fact of choice' was a deliberate attempt to reduce the scope of pure economics by excluding non-logical behaviour. In this regard, the *Manuale* explicitly eliminates any divergence between expected ophelimity and actual ophelimity (Pareto 1971c, p. 182). After considering Volterra's review of the *Manuale* Pareto went a step further in the *Manuel* by predicating equilibrium under free competition on the assumption of the integrability of the sum of consumers' budgets (Pareto 1971c, p. 469). Pareto also examined the economic welfare impact of finite variations from a point of competitive equilibrium. In that case, he notes,

> It is obvious that when the ophelimities at both given points[10] are independent of the paths followed, another path having the same extremities as the path we have just considered will give identical results.
>
> (Pareto 1971c, p. 477)

Most critically for the purposes of this study, Pareto was not aspiring to a greater generality of pure economic theory than a comparison with facts

warranted. Logical actions exist when the benefit associated with an 'end' is independent of the 'means' or path taken to arrive at that end. Such actions are generally conserved over time, which is why he classes pure economics as a study of "repeat actions which men perform to procure the things which satisfy their tastes" (Pareto 1971c, p. 103). Even when monopoly behaviour is considered in relation to free competition, the relative equilibrium coordinates (and their consequences for collective economic welfare) are considered in a stable and enduring ophelimity field.[11] Consequently, Pareto's understanding of logical action was broadly coincident with that of path-independent fields established under the integrability question. In this circumstance, the integrability issue is essentially a technical question, and the significance of Pareto's mathematical errors and conceptual confusion associated in his discussion of the integrability question, such as those included in the appendix of the *Manuel* (Pareto 1971c, pp. 396–430), should be viewed in a technical light only.

Furthermore, as evident from Chapters 2 and 3, Pareto was never a Laplacian determinist. With the reduced scope of economics in the *Manuale,* it is especially important to recognise Pareto's multidisciplinary methodology, and the role of determinism in the context of this methodology when action is logical, but also when it is non-logical.

Paretian determinism

The mechanical analogy does not begin and end with Pareto's economics. Equilibrium, forces, and interdependence between elements extends to the social sciences generally, and to sociology in particular. Mirowski's thesis that links ignorance of integrability to Laplacian determinism bears little resemblance to Paretian determinism, established under the rapport between pure economics and general sociology defined by Pareto's mechanical analogy.

In this regard, the sociological aspects of the mechanical analogy do not include an automatic maximising principle (or principle of least work in physics). Consequently, the method of analysis does not include a system of deductive field equations.

Lombardini (1991, p. 22) emphasises the fact that Pareto's distinction between economics and sociology does not imply the existence of an 'economic machine' and a 'sociological machine'. In other words, the mechanical analogy cannot be taken literally because they may relate to the same phenomena. Instead, the distinction simply reflects the application of the logical axiomatic method (or what Mirowski calls field mathematics) in economics, which are not yet possible in sociology (Lombardini 1991, p. 22). Morishima (1994, pp. xviii–xix) emphasises the same point.

When the mechanical analogy is applied to economic equilibrium and social equilibrium, as outlined in Section 3.4, there are forces between

interdependent elements within and between pure economics and general sociology.

In this regard, as Luigi Amoroso notes, it is a subtle non-deterministic evolution that is generated by these interactions:

> the crux of Pareto's system becomes apparent. The internal[12] forces of the economic system are not susceptible of a theoretical representation as simple, elegant, and universal as is the case for the applied forces.[13]... Pareto succeeds in his purpose, basing his theory on the fact that the movement of the economic phenomena cannot be separated from that of the political and social phenomena. Economic dynamics merges into Politics, or, to use Pareto's term, into Sociology.
>
> (Amoroso 1938, pp. 6–7)

Consequently, Pareto's conception of social equilibrium does not necessarily imply stable and enduring utility functions or path-independence. It is simply the point towards which social forces influence human action. Having attained equilibrium, movement away from equilibrium may be associated with forces to return the related elements back to their equilibrium relationship (i.e. equilibrium may be stable and enduring), or forces may move the related elements further away from that equilibrium relationship (i.e. the equilibrium may be unstable).[14] The potential for the instability in the relationship between the subjective purpose of conduct and the objective result of conduct—i.e. the fundamental feature of Pareto's non-logical conduct—reflects path-dependent utility. In this circumstance, and especially when the instability is manifest in political arrangements, Pareto's sociological instruments of analysis tend to specify the relationship between utility and conduct at a very general level. In this framework, utility is more generally measured in relation to the degree of conformity in an individual's conduct relative to the norms and social precepts that apply in the collective, than in relation to the field defined by commodity space.

The power of the mechanical analogy has to be assessed as it applies to the synthesis of the social sciences, which is that social change is associated with the forces and bonds between the interdependent elements of society, some of which are path-independent, many of which are path-dependent.

4.6 Dobb: the cause of value in general equilibrium systems

Systems of deterministic economic equilibrium may also have ideological implications. Maurice Dobb was very critical of Pareto for failing to acknowledge this. In his classic study of ideology and economic theory, Dobb anticipates his discussion of Vilfredo Pareto with the comment that Pareto could be called a "conscious apologist" of the "existing system" (Dobb 1973, p. 193).

His analysis commences by noting that Pareto is usually taken to be the first to divorce the theory of demand from hedonism and utilitarianism by representing utility (ophelimity) as a purely ordinal measure of 'desiredness'[15] that cannot be used for the purposes of interpersonal comparisons (Dobb 1973, p. 209). Aside from this and an emphasis on fixed coefficients of production,[16] Pareto is acknowledged as doing "little more than translating the Walrasian system into a more accessible form" (Dobb 1973, pp. 209–10). Dobb's fundamental concern with Pareto's approach to economic theory is the latter's presentation of economic theory as a system of interdependent relationships without any suggestion of cause and effect. This is dismissed as "crudely one-sided" (Dobb 1973, p. 210).

This section scrutinises Dobb's suggestion that Pareto's comments on the cause of value are crudely one-sided.

Cause and effect

Before Dobb's critical appraisal of Pareto can be considered in context, it is necessary to briefly identify the propositions that underpin the analysis of ideology and economic theory in *Theories of Value and Distribution since Adam Smith* (Dobb 1973). In this work, Dobb portrays theory as an explanation of processes and outcomes that reflect a particular relationship between what is explicitly (and/or implicitly) determined from what is initially taken as given. This relationship is largely a reflection of the theorist's "vision of the economic system, and…whatever socio-economic conditions shape and limit his mental picture of reality" (Dobb 1973, p. 7). As a consequence, Dobb hypothesises that a 'causal form' is necessarily associated with economic theory, and that consideration of this causal form facilitates identification of the ideological elements of theory.

Dobb's study of ideology and economic theory categorises different approaches to economic theory on the basis of common causal form and common consequent ideological implications. Within this analytical system, economic theories developed in the traditions associated with Jevons (and Marshall), Menger (and the Austrian school) and Walras (and the Lausanne School) are united under the generic title of the 'Jevonian revolution'. This is justified by Dobb because the approach to value theory associated with the 'Jevonian revolution' represents a significant break from the classical approach to value. Instead of starting from the proposition that labour determines value, an alternative view is developed where scarcity and consumer choice determine equilibrium values. No longer were economic processes considered in terms of the circumstances of production, social classes and class conflict; now they were considered in an atomistic and static manner, where values were determined with respect to individuals' consumer choices in isolation from the social context within which they occurred.

Dobb's consideration of Pareto stems from his goal of establishing that, for the purpose of analysing the ideology of economic theory, the general equilibrium approach associated with the University of Lausanne can be readily considered as part of the 'Jevonian revolution'. To do this, he examined Pareto's *Cours* and *Manuel.* He also noted that Pareto wrote a treatise on sociology (Dobb 1973 p. 210), suggesting that he was aware of the *Trattato.*

In view of Dobb's objectives, his main interest concerned Pareto's views on causation and the order of determination in the theory of general economic equilibrium.

Dobb's discussion of general equilibrium theory emphasises that even systems of complex interacting variables have a causal form (Dobb 1973, p. 10). In support of this, he notes that Léon Walras was aware of the causal form of his analysis (Dobb 1973, pp. 9, 170, 203–04), though he does not suggest that Walras was aware of ideological aspects associated with the order of determination advocated. In contrast, in the *Manuale* (Pareto 1974), and repeated in the *Manuel,* Pareto was critical of Walras' position on the cause of value. Pareto consistently emphasised mutual dependence, and regarded consideration of cause and effect in timeless economic theory as inevitably misleading, arguing that "any economist who looks for *the cause* of value shows thereby that he has understood nothing about the synthetic phenomenon of economic equilibrium" (Pareto 1971b, p. 177).

Dobb recognised that to some extent the difference between Walras and Pareto can be explained by varying levels of abstraction in their work. Nevertheless, irrespective of the level of abstraction, he dismisses Pareto's position (and proceeded to include general equilibrium as a part of the Jevonian revolution) because, when the

> Walrasian system is given an economic interpretation—and *a fortiori* economic application—a *determination* of some factors by others necessarily emerges. This is, indeed, how the master himself [i.e. Walras] seems to have regarded it.
>
> (Dobb 1973, p. 210)

The causal form of pure theory

Dobb did not consider why Pareto was critical of Walras and emphasised interdependence. His approach is merely portrayed as crudely "one-sided".

Dobb's analysis interprets Pareto's emphasis on interdependence as a rejection of the view that value theory implies an order of determination. However, this is a misinterpretation. Pareto did not deny the implied order of determination in economic theories of value. He simply emphasised that it may be misleading to focus on the 'cause' of value because the implied order determination in value theory is necessarily partial, especially when

the dynamics of economic phenomena are reduced, with the aid of the mechanical analogy, to a static theoretical system.

> Price or *value in exchange* is determined at the same time as economic equilibrium, and the latter arises from the opposition between tastes and obstacles. The person who looks at only one side and considers only tastes believes that they alone determine price and finds the *cause* of value in *utility* (ophelimity). The person who looks at the other side and considers only the obstacles believes that they alone are what determine price, and he finds the *cause* of price in the cost of production. And if among the obstacles he considers only labor, he finds the cause of value exclusively in labor. If in the system of conditions (equations) that we have seen determine equilibrium, we assume that all the conditions are satisfied with the exception of those which refer to labor, we can say that value (price) depends only on labor, and that theory will not be false, simply incomplete.
>
> (Pareto l971b, pp. 176–77)

As Pareto's investigations were general, he examined circumstances when prices could 'depend' on a range of factors. For example, he used general equilibrium theory to examine the economic implications of violating the conditions of free competition (type I economic phenomena of the *Manuale)*. He also had a specific interest in monopoly (type II economic phenomena) and redistribution under socialism (type III economic phenomena). In relation to these phenomena, he employed deductive logic based on propositions to infer economic welfare consequences associated with various types of economic phenomena. For types II and III economic phenomena, price cannot be said to 'depend on' elementary ophelimity (marginal utility) because the presumption of equality between relative prices and relative elementary ophelimities is removed once theorists depart from type I economic phenomena.

Consequently, 'causal' explanations of price determination are not general (i.e. they don't relate to the full range of economic phenomena that general equilibrium can represent). Furthermore, Pareto acknowledged that some factors, such as income distribution, are initially given by the "historical and economic contingencies in which the society has evolved" (Pareto 1971b, p. 268). In this context, the emphasis on the interdependencies in the study of 'general' equilibrium is solidly grounded.

However, Pareto's concern with partial and potentially misleading consideration of the causal form, or the order of determination, of abstract propositions cannot be appreciated without reference to the relationship between fact and theory, as defined by Pareto's methodology. This is because Pareto and Walras had a different understanding of the relationship between fact and theory, and Pareto's primary concern with Walras' statements on theoretical causation is based on that difference.

Interestingly, Walras' and Pareto's methodological differences over the use of general equilibrium theory were subject to close scrutiny, in vol. 37 no. 116 of the *Revue Européenne des Sciences Sociales,* by Misaki (1999); Mornati (1999); Marchionatti (1999); Lendjel (1999); Tarascio (1999); Legris and Ragni (1999); and Schmidt (1999). However, the matter was, perhaps, most succinctly expressed nearly half a century ago by Schumpeter, when he noted that while the *Cours* (Pareto 1971a) is "a brilliant Walrasian treatise" (Schumpeter 1954, p. 860), Pareto's work

> floats in a sociology, philosophy and methodology that are not merely different but diametrically opposed to Walras' ideas.
>
> (Schumpeter 1954, p. 860)

When Pareto's views on causation are considered in the context of Pareto's methodology, as opposed to Walras' methodology, it can be readily demonstrated that general equilibrium economics does not possess the ideological implications that Dobb associates with the economics of the 'Jevonian revolution'.

The relationship between fact and theory

In general terms, Dobb recognises that the relationship between fact and theory is important. However, he approaches the issue from one limited perspective, where theory has an 'economic application' or is given an 'economic interpretation'. He says nothing about how Pareto gave general equilibrium theory an economic interpretation (i.e. Pareto's treatment of the distinction between fact and theory), and nothing on why Pareto was concerned about Walras' economic interpretation of general equilibrium theory.

As Misaki has established, to Walras, "free competition is not a hypothesis to be verified but a truth that should be sought to be realised by human action" (Misaki 1999, p. 80). Within this context, Dobb's observations on causation, the economic application of general equilibrium theory, and ideology are astute. However, in contrast to Walras, Pareto's economic interpretation of theory was predicated on the relationship between the theory and fact. In this regard, Pareto examined when pure theory directly corresponded with fact, when it did not, and emphasised that a nonarbitrary synthesis of (pure and applied) theories was required to appreciate concrete phenomena.

Pareto's general critique of economists searching for 'the cause' of value is based on his perception that such economists failed to appreciate that economic equilibrium can only be appreciated as a "synthetic phenomenon" (Pareto 1971b, p. 177). In recognition of the need for synthesis, Pareto argued that

> nearly all economic phenomena express themselves in terms of *value;* but from that we [economists] have a right to conclude that in isolating the

> various elements in such phenomena we come upon a theory of value—but not that all other elements have to be squeezed into that theory.
>
> (Pareto 1935, p. 21)

In specific regard to his rejection of Walras' contention that *rareté is* the cause of value in exchange (Pareto 1974, p. 174), Pareto's comments reinforce his view that the relationship between fact and theory should be the rock on which economic science is built. As Dobb did not examine why Pareto expressed concern with Walras' views on causation, it is important to do so here.[17]

Pareto first made public his concern with Walras' discussion of the relationship between price and *rareté* in the *Manuale*. However, from his correspondence with Maffeo Pantaleoni it is evident that this concern dated back to his first exposure to Walrasian theory. In a letter written on 3 October 1891, Pareto indicated that

> One can cite many cases when the exchange value of goods depends on *other* variables that are independent of the nature of the individual and goods. I will give you some examples. The price of securities negotiated in the stock exchange often depend on dp/dt (p = prices, t = time). If, however, prices are proportional to the *raretés,* it still follows that they depend on other variables that are not only those determined solely by the nature of the individual and the goods.
>
> I accept that pure economics does not take account of these cases, and only considers the exchange of goods whose final degree of utility depends solely on the nature of the individual and the goods. But, having taken this road, for me I ask that the definition of that final degree not be stretched; otherwise, one falls into the sophism of the average ambiguous term.
>
> I have read Walras with great care, and it appears to me that he does not always take account of this.
>
> (Pareto 1960a, p. 66)

Pareto's unease was rooted in Walras' failure to identify the circumstances when the pure theory of free competition directly corresponds with the concrete economic phenomena, or the circumstances when it is necessary to introduce additional factors to appreciate the concrete phenomenon. Pareto himself tried to deal with this by integrating fact within economic theory where possible, as this clarifies the scope of pure economic theory, and also by his synthetic successive approximations approach to science.

The first indication of Pareto's intentions to integrate the 'fact of choice' within economic theory is evident in a letter of 28 December 1899 to Maffeo Pantaleoni. In this letter he noted his concern that starting price analysis from the concept of marginal utility may reflect "the mania of always going beyond experience" (Pareto 1960b, p. 288).[18] To correct this, he wished to

commence economic theory with "indifference curves which *are a direct result of experience"* (Pareto 1960b, p. 288, Pareto's emphasis).[19]

As noted in Chapter 3, Pareto formally developed his theoretical system based on the 'fact of choice' in his 1900 articles, "Sunto di Alcuni Capitoli di un Nuovo Trattato di Economia Pura" Parts I and II (Pareto 1982b; 1982c). In these studies, Pareto also demonstrated the equivalence between

(i) a purely axiomatic system of general economic equilibrium based on the proposition that ophelimity is a quantity, as outlined in the *Cours,* and
(ii) his new equilibrium system based on experimentally determined choice (represented as ordinal indicies of ophelimity).

Interestingly, by integrating the 'fact of choice' within Pareto's system of economic theory, the direction of inference is reversed, with the theorist working back to ophelimity, if it exists (Pareto 1971b, p. 391). That is, indices of ophelimity are 'inferred' from experimentally determined data. Given that this theoretical system determines an equivalent equilibrium point to that determined using a theoretical system where ophelimity is assumed to exist, the direction of causation in theoretical systems has limited significance.

When Pareto finally made public his concern with Walras' approach to theory in the *Manuale,* he expressed the view that neglect of the synthetic nature of theory seems to result in an interpretation that fact (price) is subordinate to an hypothesis *(rareté is* the cause of price). Pareto regarded this as untenable, a point which he reiterated in the *Trattato:*

> In pure economics my hypothesis of 'ophelimity' remains experimental so long as inferences from it are held subject to verification on the facts. Were that subordination to cease, the hypothesis would no longer be called experimental. Walras did not think of 'exchange value' in any such manner.
> (Pareto 1935, p. 29)

Marchionetti (1999) has gone as far as characterising Pareto's methodological foundations as 'anti-Walrasian'. In any event, Pareto applied his methodology by investigating when observable economic conditions correlate with theoretically determined outcomes under free competition. As a result of this, he established that the theory of equilibrium under free competition is very closely related to fact when conduct is constant and repeated (Pareto 1982a, p. 378–79). However, to account for the circumstance where choice is not constant or repeated, Pareto turned to a synthesis of economics (both pure and applied) with general sociology.

Aspects that demonstrated stability could be considered with the aid of the theory of general economic equilibrium. In contrast, examples of less stable economic conduct could all be considered using general sociology. In this regard, Pareto contended that logical inference based on a hypothetical proposition about

the conduct of individuals may lead to a false determinism when other 'non-logical' and unstable influences impact on human economic conduct.

Value and ideology

In recognition of the multiple influences on economic phenomena, Pareto de-emphasised causation in economic theory and abandoned use of the term 'value' in favour of the term 'price'. Value had come to be associated with the direct causation of prices, a proposition that Pareto regarded as beyond the scientific limits of pure economic theory. His consistent view was that theories must complement each other to appreciate the concrete economic phenomena. As this does not support a single direction of causation, his emphasis was placed on interdependence (not only between the elements of general equilibrium theory, but between elements emphasised in economic and social theories). Pareto had also observed the tendency to employ value theory for ideological expression. He also notes that the notion of value had become associated with complex human feelings (Pareto 1953a, p. 187).

> Metaphysically, people have used an entity called value taken as a constant cause of price variation. This…manner of reasoning easily leads astray, since it deprives [price] averages of the status they have scientifically and gives them another that is altogether imaginary. This statement, however, implies no criticism of early economists for using the term 'value'. But it was a notable step in advance when 'exchange value' came to be distinguished from 'utility value'. Further progress derived the far more exact concept of 'final utility' from the concept of 'utility value'; and going on in that fashion, general theories of economic equilibrium were finally attained. There is nothing unusual about such a course. It is the course the natural sciences have all followed.
>
> (Pareto 1935, p. 54)

However, when the term 'value' was used out of historical context in a way that implied a direction of causation, Pareto was scathing in his criticism. For example, in the *Manuale,* he noted that in "a recently published book, it is said that 'price is the concrete manifestation of value.' We have had the incarnations of Buddha, here we have the incarnations of *value"* (Pareto 1971b, p. 177).

Dobb's discussion ignores Pareto's deep concern about the effect of ideology on social theory and doctrines, which is disappointing, since Dobb was concerned with the influence of ideology on economic theory. The fundamentals of Pareto's study of ideology are evident in the *Systémes* (Pareto 1974b), especially the importance of his distinction between the objective (concrete phenomena) and the subjective (or that which our 'spirit perceives'). Pareto recognised how difficult it is to make this distinction, but insisted it was critical that it be made. Our

> ignorance of facts, our passions, our prejudices, the ideas in vogue in the society in which we live, events that strike us forcefully and a thousand other circumstances that veil the truth and impede an exact impression of the objective phenomenon prevent our impressions from being an exact copy of the objective phenomenon which gave rise to them.
>
> (Pareto 1974b, pp. 137–38)[20]

In the *Manuale,* but especially in the *Trattato,* Pareto developed his distinction between the subjective and the objective even further.[21] As shown in Chapter 3, economic theory became the study of the economic phenomena when the subjective purpose of conduct and its objective end were the same, or at least in constant relationship. This ensured that the ophelimity field in commodity space is stable and path-independent. However, when the subjective purpose is not the same as the objective intent, or they are not constantly related, the utility field (i.e. ophelimity adjusted for ethical judgements about economic and social matters) does not endure because it is path-dependent. This is treated by Pareto in his general sociology, and is applied to all social circumstances, including economic circumstances.

In this context, subjectivity in economic and social theory becomes ideological when observation of objective phenomena suggests that individuals' utility fields should be regarded as unstable and non-enduring, but are instead treated in theoretical expositions as if they were stable and enduring (and/or homogeneous across members of the collective). Furthermore, Pareto's theory of derivations provides the analytical framework for the quasi-logical rationalisation of metaphysic propositions underlying nonlogical doctrines, and the impact that such doctrines have on path-dependent conduct.

Dobb did not identify this because he focused on a single aspect of Pareto's theoretical system, the causal implications of inferences from Pareto's hypothesis of 'ophelimity', without regard for the overall methodological context, within which Pareto related economic and social theory to economic and social facts.

In summary, Pareto considered that no single causal chain in theory explains the concrete phenomenon, and that in order to reduce the influence of ideology on theory, any pretence that one has achieved a causal chain that really explains the concrete fact should not be made. In this regard, Pareto was clearly frustrated by Walras and some of his own contemporaries (i.e. the second generation of Jevonian revolutionaries) for failing to appreciate this, as evidenced by his observation that economists

> try obstinately to get from their science alone the materials they know are needed for a closer approximation to fact; whereas they should resort to other sciences and go into them thoroughly—not just incidentally—for their bearings on an economic problem.
>
> (Pareto 1935, p. 1413, cited in Tarascio 1983, pp. 119–20)

4.7 Conclusion

Pareto's determinism in economic and social theory bears no resemblance to Laplacian determinism. There is no attempt by Pareto to constitute a single theory of everything. The power of his mechanical analogy has to be assessed as it applies to the synthesis of pure economic and general sociological theory.

By dwelling on technical deficiencies, Mirowski failed to note that the central issue in his critique of the mechanical analogy, that of path-dependence and non-conservation of utility fields, was also a major concern for Pareto. Pareto's distinction between logical and non-logical conduct is highly correlated with path-dependent and path-independent utility fields, and this is precisely why the rapport between economics and sociology defined by the mechanical analogy is so important. It reconciled theory with fact without false determinism, because non-logical conduct concerns timeless generalisations about change and continuity. If an economist is defined, as Dobb defines an economist, as a person who gives theory an economic application, then Pareto the economist must be assessed in relation to his methodology, economics and sociology. The ideological influences associated with Pareto the economist—in the above sense—also require consideration of the relationship between theory and fact, including the rapport between economic and sociological theory in relation to fact. There is no recognition of this in Dobb's work, or of Pareto's overriding concern to expel metaphysical notions from social theory, or at least constrain and control them. Instead Dobb, although acknowledging the abstract structure of Pareto's economics, implicitly assumes away the distinction between fact and theory by treating general equilibrium as if it alone, and in isolation from other theories, had direct economic application.

The main error in both Mirowski's and Dobb's consideration of Pareto is primarily the same. They wished to infer Pareto's position on determinism and ideology, respectively, without reference to his methodology, or more specifically, the rapport between economics and sociology. Studies concerning Pareto's works will almost invariably misunderstand or misrepresent these works, if they do not differentiate Pareto's multidisciplinary methodology from a generic neoclassical methodology.

Appendix 4.1

Mirowski (1989): the conservation of energy and the neoclassical theory of value

Energy

The kinetic energy of a particle in motion between two points in space is defined as the integral of the product of a force field specified by coordinates x, y and z, and the displacement of the particle relative to the coordinates.

$$E = \int_{S1}^{S2} \{P_x\, dx + P_y\, dy + P_z\, dz\} \qquad [1]$$

Where E = kinetic energy; s = points in space; P = force.

Potential energy (U) is a scalar (or potential) function derived from the kinetic energy integral in a field defined by the same coordinates.

$$U = U\,(P_x\, dx + P_y\, dy + P_z\, dz); \text{ or more simply; } \ldots \qquad [2i]$$

$$U = U\,(x,y,z) \ldots \qquad [2ii]$$

Equations [1] and [2] are linked by the concept of force. The principle of least action suggests that force is in equilibrium at the gradient of the scalar field [2]. Consequently,

$$\mathbf{P} = \left[\frac{\partial U}{\partial x}, \frac{\partial U}{\partial y}, \frac{\partial U}{\partial z}\right] = \{P_x, P_y, P_z\} \qquad [3]$$

Where **P** = vector field of forces.

The field **P** is represented as the gradient of the potential energy function. In mathematical terms this is equivalent to saying P is the partial derivative of potential energy with respect to the coordinates.

However, **P** is independent of time (i.e. conserved) if and only if $\{ P_x\, dx + P_y\, dy + P_z\, dz_)$ is a perfect differential equation, and equation [1] itself is integrable. This means that the force vector **P** must be independent of the path of the particle. If **P** is path-dependent, a conserved vector force field would suggest that kinetic energy values are not unique, and the force field would not be conserved.

Consider the case where a particle moves from a point in space (s_1 in equation [1]) and returns to that same point (s_2 in equation [1], but where $s_1 = s_2$). This is referred to as a 'closed curve' in physics. If equation [1] is 'path-independent' for a closed curve variation, kinetic energy must be zero because there has been no displacement. Therefore, the vector **P** does not rotate with the particle along its closed path, so the vector is 'irrotational'.

However, equation [1] must be path-independent for variations along open curves (i.e. where s_1 is not = s_2) as well. All force vectors P_x, P_y, P_z are path-independent for closed and open circles provided that equation [1] meets the 'integrability test' expressed formally below (Equation [4]):

- the partial derivative of P_x with respect to particle displacement in the y coordinate, less the partial derivative of P_x with respect to particle displacement in the z coordinate, is equal to zero;

- the partial derivative of P_y with respect to particle displacement in the x coordinate, less the partial derivative of P_y with respect to particle displacement in the z coordinate, is equal to zero; and [4]

- the partial derivative of P_z with respect to particle displacement in the x coordinate, less the partial derivative of P_z with respect to particle displacement in the y coordinate, is equal to zero.

Having established the integrability of equation [1], the force vector **P** is time-independent and equilibrium forces are enduring. Using Lagrangian or equivalent Hamiltonian mathematics of conservation, equations [1] (provided that it is integrable), [2] and [3] imply that energy is conserved through time. That is:

equation [1] + equation [2] = k, [5]

where k is a constant.

Neoclassical value theory

The physical metaphor resulted in very similar value equations to those developed by physicists in their study of energy, especially the use of field mathematics and scalars for the analysis of utility.

The economic variables of value theory may have represented new concepts, but their relationships were essentially the same as those in the energy equations. On this basis, equations [1] to [4] above, plus two additional constraints, can characterise neoclassical value theory. To interpret these equations in an economic sense, the following ready reconciliation table is useful:

Variable	*From physics notation*	*To economic notation*
E	kinetic energy	Expenditure from budget
U	potential energy	total utility
P	force	marginal utility/equil. price
x, y, z	coordinates in space	commodities

The additional constraints are:

(i) that competition results in one price for a good (i.e. $dy/dx = y/x$, $dy/dz = y/z$, ...); and

The additional constraints are:

(i) that competition results in one price for a good (i.e. $dy/dx = y/x$, $dy/dz = y/z$,...); and

(ii) total expenditure is constrained (i.e. E in equation [1] is constant)

Appendix 4.2

Mirowski (1989): comments on Pareto and the integrability problem

- Pareto's responses to the mathematician Hermann Laurent's series of letters in 1899, asking if the expenditure function is integrable, were full of inconsistencies and had no connection to the physical metaphor that Laurent was alluding to (Mirowski 1989, p. 246).
- Laurent should be considered one of the unsung heroes of neoclassical economic theory, that his efforts in writing such letters were "above and beyond the call of duty", and that given the rambling responses of Pareto "one is at a loss as to why Laurent wanted to pursue the matter further" (Mirowski 1989, p. 246).
- "The explanation for this failure in communication is straightforward: Laurent understood the physics, and Pareto did not" (Mirowski 1989, p. 247).
- Pareto never completely understood the issue of integrability (Mirowski 1989, p. 248).
- Pareto's expression of the expenditure function in the 1906 *Manuale* is identical to Laurent's version in a letter to Walras in 1900 (Mirowski 1989, p. 248).
- When the Italian scientist Vito Volterra cautioned Pareto in 1906 that the expenditure function in the *Manuale* may not be integrable, it must have been *déja vu* (Mirowski 1989, p. 248).
- After acquiring a very imperfect grasp of the matter, Pareto's interpretation trivialised the problem (Mirowski 1989, p. 249).
- Pareto made mathematical errors when considering the issue, which "should have been all the more humiliating since an obscure Italian engineer (Giovanni Antonelli) had already gotten the technical mathematics right" (Mirowski 1989, p. 249).

5 Collective economic welfare[1]

5.1 Introduction

Pareto's contribution to the study of collective economic welfare is arguably his most important contribution to economic science (Montesano 1991, p. 115). This contribution is considered in the present study for two main reasons. First, his theory associated with individual and collective economic welfare is a central element of the economic approach to public policy. Second, it illustrates the mechanical analogy in pure economics, especially the role of time and the stability of the ophelimity field.

Newman reminds us that Edgeworth, not Pareto, was the first economist to characterise motion in which one party gains and the other does not lose as a relative maximum (Newman 1990, p. 61). Jaffé even suggests that it may have been more appropriate to name the efficiency criterion after Edgeworth (Jaffé 1972, p. 1190). However, "we talk of Pareto-optimality and not Edgeworth-optimality, and we are right to do so" (Hicks 1975, p. 22), because the significance and scope of Edgeworth's characterisation of efficiency was limited. There are two general illustrations of this in the literature. First is Hicks' comment, recalled by Jaffé, that "Edgeworth devised his principle solely within the context of the theory of exchange, while Pareto framed his principle of optimality for the whole system of general equilibrium, including production" (Jaffé 1972, p. 1190). Second is Allais' observation that "Edgeworth used his definition only in the analysis of stable equilibrium, without perceiving the contribution it could make to the study of situations of maximum efficiency" (Allais 1968, p. 404).

A further justification for naming the efficiency criterion for the study of collective economic welfare after Pareto, is that he was the first economist to defend the first law of welfare economics against criticisms raised by a mathematician. The mathematician in question was the young Italian, Gaetano Scorza. The polemic that resulted was published as articles in the *Giornale degli Economisti* between August 1902 and February 1903.

The purpose of this chapter is to consider the development of Pareto's analysis of collective economic welfare. The scope of this investigation is limited to Pareto's notion of ophelimity and does not extend to his concept of utility. Consequently, discussion of Pareto's theory of social utility (and the issue of redistribution), as outlined in the 1913 "II Massimo di Utilità per una Collettività in Sociologia" (Pareto 1980k) and the *Trattato,* is beyond

the scope of this chapter. When these works are considered, it is only to the extent that they have been used to interpret Pareto's economic approach to welfare.

The research topic is not new. In 1976 John Chipman wrote his masterful *The Paretian Heritage,* which thoroughly documents the influence of Pareto on economic theory and applied economic research, and identifies instances where Pareto's original contributions were initially unnoticed by the economics profession until subsequently rediscovered. Chipman also presents the definitive English language review of the development of Pareto's approach to collective economic welfare. This chapter outlines interpretations of some matters that are alternative interpretations to those advanced by Chipman. The alternative interpretations are in part a result of emphasising issues associated with stability in the ophelimity field and the role of time, focusing on Pareto's polemic with Gaetano Scorza from methodological and sociological perspectives.

The generally received view of the Scorza/Pareto polemic,[2] reflecting Chipman's position, is that the exchange ended with Pareto and Scorza talking at cross purposes, and that Pareto came to side with Scorza in the aftermath of the polemic (but without acknowledging this). This chapter reconsiders Pareto's exchange with Scorza in sociological, economic and methodological terms, and evaluates Scorza's influence on Pareto's subsequent analysis of collective economic welfare. Its main finding is the revelation that, contrary to the received view, Pareto did not write at cross purposes to Scorza, and that he did not side with Scorza on collective economic welfare in his work published after the polemic.

The chapter is structured into seven sections. Section 5.2 reviews Pareto's first investigation into the issue of collective economic welfare in his 1894 paper, "II Massimo di Utilità Dato dalla Libera Concorrenza". In Section 5.3 the 1902–03 polemic between Pareto and Scorza is considered in terms of the sociology of knowledge implicit in Pareto's theory of elites (i.e. as a conflict between an elite element and a non-elite element). Section 5.4 examines the methodological basis of the polemic, suggesting that at the core of Scorza's critique is a concern over the timelessness of general equilibrium theory. Section 5.5 ends the discussion of this polemic by considering Chipman's final comments linking the debate to Pareto's 1913 "II Massimo di Utilità per una Collettività in Sociologia" and the 1916 *Trattato.* Section 5.6 considers the validity of the Pareto theorem on collective ophelimity maximisation on a local or global basis, as well as Pareto's distinctive mathematical and economic approaches to this issue as outlined in the 1906 *Manuale*/1909 *Manuel.* The conclusions are contained in Section 5.7. Before proceeding further, it will be useful to define some of the terms used in this chapter:

- The *Pareto principle* states that any change that increases the ophelimity of at least one member of the collective without reducing the ophelimity of one or more members of the collective is a change that improves collective economic welfare.
- The *Pareto theorem* refers to the 'first theorem of welfare economics', namely the proposition that any equilibrium point determined under conditions of free competition and free exchange is an economic maximum that conforms to the Pareto principle.
- The *second theorem of welfare economics* refers to the proposition that any point of economic maximum can be realised under conditions of free competition.
- References to *goods* includes all consumer goods and services, while reference to *productive services* means anything with an economic value which may be spent or consumed in the production or exchange processes (e.g. labour services and other productive factors).

5.2 "II Massimo di Utilità dato dalla Libera Concorrenza" and the *Cours*

Pareto's purpose in writing "II Massimo di Utilità dato dalla Libera Concorrenza" in 1894 (henceforth referred to as the "1894 Massimo" article) was to consider the effect of variations in production techniques on collective economic welfare. It was a logical extension of his previous article (Pareto 1982b) in the *Giornale degli Economisti* entitled "Teoria Matematica dei Cambi Forestieri", which examined Walras' equilibrium equations.

In the Walrasian system, the equilibrium price of a particular good equals the sum of the value of each productive service consumed in the production of the good. The value of each productive service is determined by the mathematical product of the price of the service and the fixed production coefficient associated with that service.[3]

The coefficients constitute the quantity of the service consumed in the production of one unit of the final good, given a single, fixed-production technique. In the "Teoria Matematica dei Cambi Forestieri", Pareto discussed whether productive coefficients (i.e. coefficients *b* and *c* in the following quotation) must be fixed or whether they may be varied. He suggests that

> we are not in the least constrained to suppose that the coefficients b, c, …are constant; they can be functions of all variables. It is true that when one is about to use these formulas it can be useful to suppose that for a first approximation these coefficients are constant—and that is ample justification for the hypothesis of Prof. Walras. For a second approximation we can suppose that they increase, or decrease, with the growth in the quantity of B, C,…produced…
>
> (Pareto 1982b, p. 249)

The objectives of the "1894 Massimo" article were to establish the mathematical techniques to enable production coefficients to be specified as variables and then determined under conditions of free competition, and also to investigate the consequences for collective economic welfare when the coefficients of production deviate from those values. The paper was written in two distinct parts. This was not only the result of a structural scheme to organise ideas in a logical sequence; it also represented the chronological order in which the paper was written. The first part was intended to be published as a stand-alone paper, and is considered first.

In Part I, Pareto examined the absolute variation in collective ophelimity[4] due to a change in the production coefficient da_t on the assumption of constant returns to scale.[5] The change in the level of ophelimity 'spent' (from the use of productive services) and ophelimity 'enjoyed' (from the use of goods) are separately examined. However, both changes are valued in terms of a common numeraire—good A. This facilitated measurement of the aggregate change in both ophelimity 'spent' and ophelimity 'enjoyed', and enabled the variation in collective economic welfare to be determined absolutely by subtracting the former from the latter.

Pareto suggests that "society obtains the largest sum possible of utility with the minimum difficulty (with the least expenditure of utility) possible" (Pareto 1982c, p. 284) when a change in production coefficients cannot increase the value of ophelimity enjoyed less ophelimity spent. On the basis that coefficients of production under free competition minimise spent ophelimity, and that consumers are free to maximise their ophelimity enjoyed so that relative prices equal relative elementary ophelimities, Pareto verifies that

> the coefficients of production determined by free competition have the identical value to those which one obtains by determining the coefficients with the conditions to produce the maximum of utility with the minimum of sacrifice.
> (Pareto 1982c, p. 283)

Other than acknowledging that the value of a good exchanged in society is equal to the sum of the exchanges between its individual members, there is no account of the impact of changes in coefficients of production on individuals. Ophelimity is represented socially, that is, as the sum of exchanges expressed in numeraire good equivalents. It should also be noted that Pareto's demonstration requires an implicit assumption that the production set is convex (Montesano 1997a, p. 3).

The practical consequences of this theorem were, according to Pareto (1982c, p. 284), twofold. One related to entrepreneurs; the other concerned workers. In relation to entrepreneurs, the theorem suggests that they would not be advantaged if they increased the coefficients of production for labour services (to a level above that established by free competition) in the hope that it would increase workers' spending. Similarly, assistance to workers

would be more efficiently achieved through a coordinated transfer of income between citizens (through redistribution policy), than by directly altering the coefficients of production from those achieved under free competition.[6]

Chipman (1976, pp. 89, 95) has drawn attention to Pareto's contention, that Walras had already demonstrated that free competition produces the maximum of ophelimity when there are common prices for successive exchanges *and* fixed production coefficients (Pareto 1982c, p. 276). He suggests that Pareto used the term 'maximum welfare' to mean 'Pareto optimal', and attributed this result to Walras (Chipman 1976, p. 89).

However, this interpretation requires some qualification. Discussion of the criteria underlying the Pareto principle does not appear until the second part of the "1894 Massimo" article, and Pareto's reference to Walras' demonstration that free competition produces the maximum of utility is in Part I.[7] When Pareto's comments are considered in the context of Part I alone, he is in effect attributing to Walras the result that the aggregate value of a collective's economic product is maximised under conditions of free competition and fixed production coefficients. This falls short of attributing Pareto optimality to Walras.

Pareto first introduced the Pareto principle in Part II of the paper, after receiving critical comment from Pantaleoni and Barone on Part I.

> It was our intention to publish separately the two parts of this work…. However, some observations by Prof. Maffeo Pantaleoni and Mr. E. Barone have alerted us to some things in the first part that could be poorly understood because they had been too imperfect and incomplete. …The observations of these distinguished gentlemen presently remembered took issue with that part of the demonstration where one talks of a maximum of social utility, appearing that the method is contrary to the principle that different individual utilities are evaluated with different units, they cannot then, at least without special warning, be summed. In effect we do not sum *utility,* rather the quantities of goods that produce these utilities. However, if some obscurity remains, it will be removed, we hope, by this second demonstration.
>
> (Pareto 1982c, pp. 285–86)

Pantaleoni and Barone's concerns were addressed in the second part of the article by shifting focus from aggregate benefits and aggregate costs to the net effect of benefits and costs on individuals. Using the notation contained in Appendix 5.1, a change in individual i's ophelimity is portrayed as follows:

$$dU_i = \varphi_{ia}(q_{ia})\, dq_{ia} + \varphi_{ib}(q_{ib}) dq_{ib} + \ldots - \varphi_{it}(q_{it})\, dq_{it} - \ldots; \qquad [1]$$

Subject to the condition that relative prices reflect relative elementary (or marginal) ophelimities and the law of one price,[8] changes in ophelimity

(following a change in the coefficient of production a_t) for each individual member of the economic system are represented as:

where i=(1, 2,…, θ), where θ is the number of individuals, λi; = a value measured in good A whereby the change in ophelimity is: $\lambda i\ \varphi_{ia}$, $\lambda i\varphi_{ib}$, etc.

The significance of λ is that it allowed Pareto to make it clear that interpersonal comparisons of ophelimity are not necessary to consider collective welfare abstractly, while at the same time identifying an objective element that is positively correlated with individuals' assessment of ophelimity. In effect, good A is the numeraire that represents λ_i, and provides the link back to ophelimity and the value of the collective's economic product.

When λ_i is equal to zero for all individuals, it would not be possible to improve anyone's ophelimity by changing production coefficients. However, there is no reason to expect all λ_i to equate to zero. As Pareto (1982c, p. 287) notes, there is only one unknown (i.e. da_t) and θ equations. When all the λi's are positive, everyone's ophelimity will be unambiguously increased by da_t; so collective ophelimity increases unambiguously. Conversely, when all the λ_i's are negative, collective ophelimity unambiguously improves by reversing the direction of change in da_t (i.e. from a positive to a negative change, or vice-versa).

It is from Pareto's consideration of the situation where some individuals' λ are negative and some positive—and bearing in mind the comments of Pantaleoni and Barone—that the Pareto principle was first enunciated by Pareto when he stated that collective economic welfare is improved by proceeding in

> one way or another as long as all the λ's have the same sign. But when we reach the point at which some are positive and others negative, we shall not be able to proceed any further because we shall be favoring some individuals at the expense of others. When a_t grows by da_t, if some of the λ are positive and others negative, this means that utility enjoyed by certain individuals increases, and that of others decreases. It is not possible to offset these various utilities against each other since they are reckoned in different units.
>
> (Pareto 1982c, p. 288)[9]

However, Pareto does not stop at this point. He goes on to consider the numeraire good and lay the foundation for what Montesano calls the 'minimal resources' criterion of efficiency. This is where an economic state is regarded as efficient, if there is no alternative allocation to which all individuals are indifferent which could be obtained with a smaller amount of resource under given technology (Montesano 1997a, p. 1). The basis of this can be seen in the following quote:

> Letting ξ be the sum of the positive λ's, and s that of the negative λ's, if ξ—σ is positive, we can take as much of commodity A away from individuals for whom the λ's are positive (the others being reckoned in terms of commodity A) as is needed to bring the negative λ's back to zero, and there will be a residual. Hence society as a whole will have made a gain. This can be distributed among all the members of society, or among only some; this is a question that I shall not now examine—it is enough to point out its existence. Hence it will be desirable to increase a_t by da_t, and only later to examine how to distribute that residual. When should we stop increasing a_t? Precisely when ξ—σ = 0; because proceeding still further, so that ξ—σ becomes negative, it would no longer be possible to take so and so much of the commodity away from those for whom the λ's are positive to compensate those for whom the λ's are negative. Society as a whole would therefore undergo a loss, and no longer a gain.
>
> (Pareto l982c, p.288)[10]

Pareto's purpose here is to reconcile his collective economic welfare theorem expressed in Part I with the Pareto principle developed early in Part II of the article. When ξ–σ = 0, the sum of society's net product in terms of the numeraire good is maximised.[11] The "residual" referred to is the increase in society's net product attributable to change in the coefficients of production. When the point is reached where any change will not result in a residual, 'minimal resource' usage is achieved in the production of net national product, and this is realised under free competition (assuming that free competition results in cost minimisation). This residual is important in the development of welfare theory for three reasons.

First, and most important, the existence of the residual provides the logical basis for Pareto's most comprehensive development of the surplus approach to welfare in the *Manuel*. In his mature economic studies, Pareto associates 'surpluses' with the economic form of the Pareto theorem, which is distinct from the mathematical form of the theorem based on ophelimity (as discussed further in Section 5.6).

Second, as Chipman (1976, p. 92) pointed out, the discussion of the distribution of the residual constitutes a preliminary specification of the compensation principle used in welfare economics. Priority for this principle is not usually attributed to Pareto, but to Enrico Barone for his 1908 article "II Ministero della Produzione nello Stato Collettivista" (Barone 1935). See, for example, Blaug (1985, pp. 588–89).

Finally, in a pure exchange economy the residual is distributed among individuals by the exchange process itself. While Pareto established the Pareto theorem in relation to the maximisation of society's net product through minimal resource usage, he did not explicitly consider whether the process of exchange would conform to the Pareto principle. It is not until the debate with Scorza that Pareto formally considered this question.

Pareto's first major economic publication following the "1894 Massimo" article was the *Cours*. According to Ugo Spirito, the whole of the *Cours* turns systematically on the notion of free competition, developing the proposition, chapter by chapter, that free competition is the necessary and sufficient condition for maximising ophelimity (Spirito 1978, pp. 10–11). It is also the book with which Bergson (1938) commenced his consideration of Pareto on collective economic welfare. However, the formal analysis of the Pareto theorem in the *Cours* is at times less clear than in the "1894 Massimo" article.

Nevertheless, there is one important and unequivocal advance in the *Cours,* namely the consideration of collective efficiency under socialism. While the subject was raised in the 1894 article, it was only examined in a preliminary and confusing manner.

In the *Cours,* a socialist system is considered in the context where responsibility for the distribution of society's net product/income is assigned to the Minister for Justice, and responsibility for the coefficients of production is assigned to the Minister for Production. The analysis shows that under socialism and free competition, welfare maximisation is based on the same functions of factor prices (Chipman 1976, p. 93). Consequently, collective economic efficiency in a socialist system requires the same coefficients of production that would prevail under a system of free competition, if the distribution of income determined by the Minister for Justice accords with that under free competition. Pareto's analysis here represents an implicit expression of the second theorem of welfare economics (Montesano 1997a, p. 5).

5.3 The Scorza/Pareto polemic (I): sociology of knowledge

In 1902 Gaetano Scorza was a twenty-six year old mathematician who, at the urging of Maffeo Pantaleoni (Gattei and Guerraggio 1991, p. 90), became interested in the application of mathematics to economics. However, this interest was short lived. The first of his four articles on economics was published in the *Giornale degli Economisti* in April 1902. The ensuing polemic between Scorza and Pareto was published in the *Giornale degli Economisti* between August 1902 and February 1903.

This polemic provides the opportunity for a case study in the sociology of knowledge, whereby Pareto's response to criticism is considered in terms of his own theory of 'elites'. It also allows the development of Pareto's theorem for a pure exchange economy—which was not considered in either the "1894 Massimo" article or the *Cours*—to be tracked in Section 5.4. This reveals the importance of the mechanical analogy in Pareto's work, and demonstrates that this contrasts with Scorza's preferred approach.

Scorza's first exploration into economic theory, "Osservazioni sulla Teoria del Baratto Secondo il Prof. Walras", compliments Walras for laying the foundations for a mathematical investigation of economics, but concludes that Walras' work was not rigorous (Scorza, cited in Gattei and Guerraggio

1991, p. 93). The debate proper was unwittingly initiated by Scorza in his second article, published in August 1902, which reviewed Cassel's *Grundriss einer Elementaren Preislehre.* He asserted that Walras' and Pareto's conclusions on collective economic welfare were false:

> given a certain system of prices every individual participating in the exchange tries to regulate their demand and their supply in a way that ophelimity is maximised from this exchange, and that many authors from Walras to Pareto have deduced the conclusion that every participant in the market will achieve the maximum of ophelimity under a regime of free competition. Now, Cassel profoundly observes that there is nothing in that event that is essentially characteristic of free competition, and therefore the reasoning by which this conclusion is drawn from the presence of the equations of maximum satisfaction in the system that determine the equilibrium, is nothing other than gross sophistry.
>
> (Scorza, cited in Pareto 1982i, p. 489)

Pareto's response was titled "Di un Nuovo Errore nello Interpretare le Teorie dell'Economia Matematica", and was published in November 1902. The force of Pareto's response to Scorza, as well as the scholarly elements discussed in the next section, was undoubtedly influenced by the suggestion of sophistry. Pareto was a long-time crusader against sophistry in scientific endeavours, and Scorza's critique was written around the time that the *Systèmes (*which forms the basis of Pareto's sociology of ideology and knowledge) was published. Included in this work are extensive discussions of the sophistry of theoretical systems, including those based on the metaphysical notion of liberal Utopia (Pareto 1974b, pp. 476–96). When Pareto's discussion of economic welfare maximisation for the collective is considered in the context of his sociology of knowledge (especially his critical analysis of liberal Utopia) and his "1894 Massimo" article, there is no strong basis on which Scorza's sophistry claim can be sustained.

In response, Pareto levied insults, including a veiled accusation of plagiarism, without even naming Scorza.

> one opens a book on mathematical economics; from the first page one has doubts; one does not stop to consider whether these arise because one has not understood the theories, and instead of carrying on with their study so as to understand them, one prefers to write a fine article about them, with little science and less understanding….
>
> At this moment some able men have made the discovery at the same time, assuming that one did not copy from the other, that in the mathematical theory of economics there is a sophistry, rather a "gross sophistry".
>
> (Pareto 1982i, p. 488)

To appreciate why Pareto's responses to Scorza demonstrated overt contempt for the man, it is useful to consider their dispute in general sociological terms, and more specifically through Pareto's theory of elites. As this theory is usually considered in a political context, the suggestion that the dispute can be considered in terms of this theory may initially appear out of context. However, the theory was intentionally specified generally. Pareto quotes Kolabinski's view that the "outstanding idea of the term elite is superiority. That is the only one I keep…. In a broad sense I mean by the elite in a society people who possess in marked degrees qualities of intelligence, character, skill, capacity" (Kolabinska, cited in Pareto 1935, p. 1421). Pareto builds on this to clarify that every branch of human activity has an elite, or "class of people who have the highest indices [of capacity] in their branch of activity" (Pareto 1935, p. 1423).

The aggressive anti-Scorza sentiment that fills the first few pages of "Di un Nuovo Errore nello Interpretare le Teorie dell'Economia Matematica" suggests that Pareto was defending the elite Lausanne school's reputation in Italy against assault from a troublesome critic trying to shift the focus of mathematical economics. As Pareto was not a 'degenerate element' of the dominant elite, he set about quickly eliminating Scorza's criticisms by both scientific and sentimental means.

In both public and private documents, Pareto portrayed Scorza as a beginner who simply did not understand economics. Examples of private correspondence to this effect include Pareto's letters in 1906 and 1907, to Vito Volterra and Maffeo Pantaleoni respectively. Pareto's letter to Volterra indicated that Scorza was in error from the first word to the last because his point of departure is absolutely false (Pareto 1989, p. 450). In a letter to Pantaleoni, Pareto states that Scorza starts from "the given a priori concept that I am an ass, then reads that all the things of which I am convinced are nonsense without taking the slightest care to understand them" (Pareto 1989, p. 450).[12]

Pareto's final response to Scorza was "A Proposito del Massimo di Ophelimità", published in February 1903. It was an expression of total indignation. In the first paragraph he used sarcasm when he observed that Scorza "honours" him with regular consideration in articles published in the *Giornale degli Economisti* and has the "great charity to correct my blunders and to teach me the fundamentals of political economy. I therefore have the right and the obligation to express my thanks" (Pareto 1982j, p. 521). He goes on to recount his own student experience at the University of Turin when he thought that a proposition put by his mathematics professor was erroneous. Instead of confronting the master, Pareto returned home to study the matter further, only to discover that the proposition was correct after all. He was of course implying that Scorza should learn from this lesson. In the final paragraph Pareto eliminates the possibility of any further debate:

> By now I am quite sure the reader may be—and even without saying may be—beginning to find these discussions of mine lengthy. As far as I am

> concerned they are finished. Mr Scorza can carry on criticising me as much as he likes, every time that he finds some difficulty understanding a theorem, and writes an article to say the theorem is wrong; I pledge not to respond again, and I declare that this polemic is, on my account, definitely closed.
> (Pareto 1982j, p. 522)

Scorza did not reply to Pareto after this, and did not enter into debate over economic theory again.

However, although Pareto portrayed Scorza as a nuisance amateur economist and clearly did not regard the elite Lausanne school as under serious threat from any potential alternative elite, Scorza did alert Pareto to deficiencies in his work on collective economic welfare, and raised methodological issues that contrasted with Pareto's. The received view is that Scorza raised some important points (Chipman 1976; Gattei and Guerraggio 1991). However, Montensano points out that the central element of Scorza's critique is "economically absurd" (Montesano 1991). Nicholas Georgesque-Roegen also noted that, beyond the objection that counting independent equations and unknowns without inquiring whether the system of general equilibrium has multiple solutions, Scorza's "lack of economic understanding showed up unobstructed" (Georgescu-Roegen 1975, p. 228).

5.4 The Scorza/Pareto polemic (II): economic maximum and methodology

In "Di un Nuovo Errore nello Interpretare le Teorie dell'Economia Matematica", Pareto also considered the relationship between economic maximisation and free competition in a pure exchange economy on a scholarly basis. As in the "1894 Massimo" article, relative prices were assumed to reflect relative elementary ophelimities and the law of one price, when competition is free. In contrast, monopoly is characterised by the circumstance where one individual possess all of one good. Here the equality between the price of the monopoly good and elementary ophelimity ceases, because the monopolist's behaviour may be directed towards the goal of revenue maximisation.[13]

The term 'freedom to exchange' is assigned a very formal definition, and is represented by individuals' balanced budgets in the circumstance where goods markets are fully and instantly cleared by voluntary exchange.[14] Freedom of exchange is associated with both free competition and monopoly. Under free competition relative prices equal relative elementary ophelimities, but this is not the case for all goods under a monopoly system. Analysis of the competitive system is also predicated on a given distribution of resources and the assumption that the elementary ophelimity for all goods is positive.

To determine whether equilibrium under free competition constitutes a point of collective economic maximum, Pareto examined the economic consequences for individuals as the economy moved along a virtual path

from an equilibrium point under free competition for an exchange economy (point I) to another point (point II). The path reflects a virtual movement between two points because Pareto's approach to economic welfare theory is essentially timeless (i.e. as per the mechanical analogy). As there was no attempt made to consider economic dynamics, the movement along the path cannot be considered as a real movement.

Pareto's analysis of virtual movement along a path is in two parts. First, when the distance between the points is "infinitesimal", and subsequently when the distance is "finite".

If the infinitesimal (virtual) movement from point I to point II is to remain the subject of free exchange, then the conditions that define market clearing subject to a budget constraint must continue to hold for all points along the path from point I to point II. To conform to the budget constraint, the sum of the 'change in values of exchange' associated with the movement away from point I must be zero. To conform to the market clearing constraint, the sum of the change in the quantity of goods exchanged must also be zero. By considering these constraints in conjunction with his definition of a change in an individual's economic welfare as the sum of the product of (i) marginal ophelimity, in numeraire good A, for each good; and (ii) the change in quantity of each good exchanged, Pareto defined his efficiency condition as:

$$\sum_{i=1}^{\theta}(1/\varphi_{ia})\, dF_i = 0 \qquad [3]^{15}$$

Where i = individuals (1, 2, 3,…θ), φ_{ia} = elementary ophelimity for individual i from good a, and dFi=change in individual i's ophelimity due to movement from point I.

Assuming, with Pareto, that elementary ophelimity is always positive, the mathematical sign of an individual's change in economic welfare[16] depends entirely on the change in the value of goods held, as measured in terms of the numeraire good. Following an infinitesimal variation away from an equilibrium under free competition at point I, an individual's change in the numeraire value of their holding of economic goods may be either zero, positive or negative. As a result, when the efficiency condition defined by equation [3] above holds at point I, any infinitesimal variation will not have a negative impact on the economic welfare of some individuals, but will necessarily have an adverse impact on the economic welfare of at least one individual.[17] Consequently, in "Di un Nuovo Errore nello Interpretare le Teorie dell'Economia Matematica" the Pareto theorem is specified under an exchange system that relies on the Pareto principle (for evaluation of infinitesimal variations) for verification.

Pareto also considered *finite* variations from point I defined by the variable 't', which is zero at point I, and increases to t' as the economy moves along a path to point II.[18] The value of 't' is determined by a succession of infinitesimal changes as the variations shift from infinitesimal to finite movements. This analysis is predicated on two assumptions/conditions. First, elementary ophelimity is always positive (as also assumed in the infinitesimal analysis), and second, elementary ophelimity diminishes as consumption increases.

A consequence of the first condition is that the mathematical sign of an infinitesimal change in quantity in numeraire equivalents will be the same for a finite change in quantity. Therefore, infinitesimal and finite changes in total ophelimity (i.e. $d\mathrm{F}_i$ and $\Delta\mathrm{F}_i$ respectively) initially have the same mathematical sign. There are two consequences from the second condition for an individual moving along a path from point I to point II. First, total ophelimity increases at a decreasing rate when the initial infinitesimal variation improves economic welfare. Second, total ophelimity forgone increases at an increasing rate when the initial infinitesimal variation harmed economic welfare. Therefore, an individual may initially gain by moving from a point of equilibrium under free competition, but when the growing rate of loss from reduced consumption of some goods exceeds the diminishing gain in ophelimity from increased consumption of some other goods, the change in total ophelimity becomes negative. Ultimately a point will be reached where everyone's change in total ophelimity will become negative. From this, Pareto concludes that

> one cannot, in departing from…[a point of competitive equilibrium defined by equation [3]] by infinitesimal variations in the quantities, increase (or decrease) all the ophelimities, conferring advantages (or disadvantages) on all the individuals, but that if some ophelimities increase others necessarily decrease; if some individuals are favoured, others will be harmed.
>
> For a finite displacement, this proposition remains true provided we remove the restriction that not all ophelimities can decrease, and state that the equilibrium position defined by the equations of maximum ophelimity at point I is such that one cannot, in departing from it cause all the ophelimities to increase…but at least some of the ophelimities must decrease.
>
> (Pareto 1982i, pp. 499–500)[19]

Pareto also supported his analysis with an empirical example of two individuals in a two-good case. This is particularly interesting because it demonstrates that a point of economic maximum is achieved when two individuals' concave indifference curves are tangential (Pareto 1982i, pp. 508–09).[20] This result is graphed, with the two individuals sharing the same

axis and origins. However, it is not presented in the more famous form referred to as the Edgeworth box diagram (which, as established by Jaffé (1972, p. 1190) and Tarascio (1972) was first introduced to the economics profession by Pareto in the *Manuale* (Pareto 1974c, pp. 138, 251).

In his reply of January 1903, titled "A proposito del Massimo di Ofelimità dato della Libera Concorrenza",[21] Scorza accepted Pareto's analysis of infinitesimal variations (Scorza 1903, p. 55), even noting that it holds for "sufficiently small" (i.e. local) variations. However, he rejected the analysis of finite variations. First he suggested that it was absurd to equate the change in Pareto's t variable with t' because the conditions of market clearing need not be met (Scorza 1903, p. 50). The implication here is that the paths from point I defined by first-order variations are not necessarily compatible with the conditions of free exchange, as the solution may require that supply and demand equilibrate beyond some individuals' budget constraints.[22] Second, Scorza continued to insist that there may be more than one point of economic equilibrium, where total ophelimity at one point is greater than for the other (Scorza 1903, pp. 60–62).[23] As a consequence, he concluded that Pareto's theorem of maximum economic welfare "cannot be said to be demonstrated and is without doubt false" (Scorza 1903, p. 47).

Criticism of Pareto's analysis of finite variations is evidently justifiable because Scorza's first point is valid (Chipman 1976, p. 104). However, it is not a fatal blow as the error can be corrected without violating the finite version of the theorem, though Pareto only went part way to making this correction. As Chipman (1976, p. 104) notes, Pareto in the 1906 *Manuale* specifies that the quantities which determine these paths "are not constant, they are quantities that result from the equations which must satisfy prices and coefficients of production" (Pareto 1974c, p. 402). While he did not, however, take the next necessary step of explicitly constraining consumers' ophelimity functions to a convex form, it is clear from the context of his work that Pareto regarded the form of the functions as convex.

The second point is the core element of Scorza's concern, and complements his concern over the inadequacy of Pareto's proof for finite variations. That is, when finite variations are considered, there may be points of multiple equilibria which are efficient in terms of the Pareto principle, but some may be more preferred than others. Montesano (1991, pp. 124–25) found that suggestion erroneous. He accepts the contention that there may be multiple equilibria, but points out that only one of the points of equilibrium can be Pareto superior when exchange is considered in the context of budget constraints and convex ophelimity functions.

Even though Pareto's formal analysis was only strictly correct for infinitesimal variations, it could have been validated if the ophelimity functions were explicitly specified as convex and stable. In this regard, Pareto's ophelimity field is stable (see Chapters 3 and 4), and the numerical example in "Di un Nuovo Errore nello Interpretare le Teorie dell'Economia Matematica"

only considered the case of convex indifference curves, and more generally, Pareto's economic theory implies convex ophelimity functions, as does his graphical representations, including the Edgeworth box diagram.[24]

It is the contention of this study that Scorza would not have been satisfied by an explicit consideration of the shape of ophelimity functions in the context of finite or global variations. This is based on the judgement that the underlying reason for his multiple equilibria critique was a concern with the static representation of economic phenomena generally, including representation of ophelimity functions as stable. To appreciate this it is useful to follow the example of Gattei and Guerraggio (1991) and consider Scorza's previous article "Osservazioni su alcuni Teorie di Economia Pura" of December 1902. This is a particularly important article because it outlines Scorza's difficulty with Pareto's *Cours.*

In "Osservazioni su alcuni Teorie di Economia Pura", Scorza contends that equilibrium is not a static instantaneous process. He suggests that the mechanical analogy is vague because, in the case of Pareto, there is an inexact correspondence between the text of the *Cours* and the footnotes that contain the mathematical formulae (Scorza 1902, p. 514). Pareto's textual explanations are closer to concrete phenomena than the mathematical footnotes that contain much less information than the text suggests. He concludes that Pareto is "unconsciously obliged" to do this because he does not recognise that facts correspond poorly to the analysis contained in the mathematical notes (Scorza 1902, p. 514).

Scorza's observation of divergence between the text and the mathematical notes in the *Cours* is correct. Pareto did discuss processes by which equilibrium may be attained which are not detailed in the mathematical representation of general equilibrium.

However, his conclusion that this reflects an "unconscious" obligation can only be sustained if Pareto's methodology is ignored. When discussing successive approximations, the first approximation is specified as pure theory. In the context of economics it centres on stable equilibrium points, so that the economic problem can be reduced to a question of timeless analysis. Pareto's mathematical economic theory did not concern itself with the transition to a point of equilibrium, not because it is not worth considering, but because at the prevailing state of knowledge the transition to equilibrium points was beyond a first approximation. Pareto's text on pure economic theory includes comment on real economic processes. However, these are intended to illustrate why there is a correspondence between the outcome of real economic processes and pure theory, not to describe a model of real processes on a step-by-step basis.

In contrast to Pareto, Scorza's preference was to bring pure theory closer to the concrete economic phenomena by assigning a greater role to time. Instead of assuming that prices are constant, Scorza proposed a two-step equilibrium determination process to account for the "two series of distinct

operations" associated with exchange (Scorza 1902b, pp. 505–06). The first step is to determine the quantities of goods that individuals are willing to trade based on functions where existing 'constant prices' prevail. That is, Scorza's first step is a standard Walrasian function to determine excess demand. Subsequent to this, prices are treated as variables, with exchange taking place when individuals maximise their welfare.

This may be seen as an attempt to unite dynamic real economic processes with elements of the mechanical analogy. However, it soon established that Scorza's approach was flawed, as Pareto quietly pointed out in the 1909 *Manuel*. When referring to equation 37 of the *Manuel* (i.e. $f(x_1 y_1, \mu) = 0$, where μ, corresponds to price), he observed that

> It is necessary to be careful that μ is not treated as a variable when equation 37[25] is differentiated to determine the point of tangency with an indifference line, otherwise one would pass from one line to another. This observation is so elementary that it may appear superfluous; it is made only because one writer has fallen into the silly error of allowing μ, to vary…. What is more, that writer imagined that it is by error that in these circumstances we always differentiate with price held constant!
>
> (Pareto 1971c, p. 410)[26]

Although erroneous, Scorza's approach to equilibrium provides some insight into the fundamental nature of his concerns with general equilibrium theory, and with Pareto's methodology, more specifically. His insistence that it is pointless to assume, along with Pareto and Walras, that entrepreneurs determine the coefficients of production to minimise costs, knowing the equilibrium price for all productive services and products (Scorza 1902, p. 511), provides further evidence of his dissatisfaction with the treatment of time in economics.

> Now there is in the theory of production, as it is presented by mathematical economists, something that is not well elaborated: upon perceiving it, one feels a sort of intellectual discomfort, a justifiable discomfort when one thinks that…no importance is given to the element of time, when the dynamic side of the question should be put in the front line.
>
> (Scorza 1902, pp. 513)[27]

Given this contextual background, his support for the infinitesimal version of Pareto's theorem of free competition may be regarded as a recognition that general equilibrium is also a reasonable theoretical approximation, under conditions restricted to very small variations. However, for finite variations, the influence of time on economic facts suggests that their relationship is no longer stable enough to assume constant prices, and under different price

arrangements, an equilibrium point under free competition need not be a global maximum.

Recasting Scorza's position in the language that Mirowski (1989) developed in his *More Heat than Light,* it would appear that Scorza rejects the mechanical analogy in economics when considering finite variations because consumer goods and productive services are path-dependent. While ophelimity may be locally path-independent when infinitesimal variations are considered, he did not support the timeless examination of finite or global variations. The contrast here with Pareto in terms of methodology is great. Pareto assigns some importance to the general study of virtual movements, while Scorza limits it to infinitesimal variations only.

This presents an interesting contrast with Hermann Laurent, the actuary/mathematician who wrote to Pareto between 1899 and 1902 on the issue of integrability. On the one hand, Pareto faced queries from a mathematician (Laurent) which suggested that conservation of prices implied by the mechanical analogy requires more restrictive conditions than those contained in Pareto's exposition of general equilibrium. On the other, he was being criticised by another mathematician (Scorza) because the mechanical analogy was already excessively timeless, and that concrete processes associated with the derivation of economic data need to be examined in a theoretical context.

In 1902 Pareto was equally contemptuous of both these views. By the 1909 *Manuale,* he had (probably unknowingly) moved his approach to economics closer to accommodating Laurent's concerns than those raised by Scorza.

5.5 The Scorza/Pareto polemic (III): Chipman's final comments

Chipman (1976) provides an excellent exposition of the development of Pareto's theorem, and is also noteworthy for his examination of the Pareto/Scorza polemic. However, the article also contains some errors, including the finding that Pareto misinterpreted the core of Scorza's critique and the contention that, in the 1913 "II Massimo di Utilità per una Collettività in Sociologia" and the 1916 *Trattato,* Pareto takes the side of Scorza (and Cassel) without mentioning their names. The purpose of this section is to examine these two misinterpretations.

In relation to Pareto's appreciation of the main aspects of Scorza's critique relating to multiple equilibria and the possibility of welfare superior equilibria that are a finite distance from equilibrium determined under free competition, Chipman concludes that Pareto's and Scorza's "acrimonious dispute ended at cross purposes, without meeting the point" (Chipman 1976, p. 108). Scorza criticised Pareto

> for not taking into account the case of multiple competitive equilibria: he assumed—and in the absence of an explicit assumption of (global) quasi-concavity of utility functions, and assuming the conditions (3.19)[28]

> to correspond only to a *local* maximum for each individual, this could well be true—that it would be possible to find such a case in which individuals are better off in one equilibrium than in another.... Pareto indicated (but without mentioning Scorza by name) that Scorza's major error was his failure (but in his earlier article) to comprehend that competitive behaviour was characterised by the treatment of prices as parameters by individual agents.
>
> (Chipman 1976, p. 108)

It appears that this finding is significantly influenced by Chipman's confusion of the chronological order of the debate. The actual chronological order is summarised in Table 5.1. Chipman's text indicates that the two-step maximisation process in "Osservazioni su alcuni Teorie di Economia Pura" made Scorza "easy prey" for Pareto in his "Di un Nuovo Errore nello Interpretare le Teorie dell'Economia Matematica" (Chipman 1976, p. 96). However, this cannot be correct, since this paper was published before Scorza's "Osservazioni...". [29]

This explains Chipman's erroneous interpretation that Pareto's subsequent "A Proposito del Massimo di Ophelimità" should have been a response to Scorza's final article. Quite simply, it was Pareto's first opportunity to respond to Scorza's last two articles, including the two-step optimisation process outlined in "Osservazioni...". Chipman (1976, p. 108) is correct in his deduction that Pareto's comment in "A Proposito del Massimo di Ophelimità", that Scorza made a major blunder, is a reference to the two-step maximisation process. However, it cannot be regarded as evidence in support of the view that Pareto failed to appreciate Scorza's main concerns. While the shape of indifference curves is an important issue, it was not necessarily the core of Scorza's concerns (as suggested in the previous section). Consequently, there does not appear to be a strong case for the proposition that Pareto and Scorza were talking at cross purposes.

Table 5.1 Chronological order of the Scorza/Pareto polemic

Order/author/article/date	*Comment*
1) Scorza: Recensione a G. Cassel, Grundriss einer elementaren Preislehre (August 1902)	Review article
2) Pareto: 'Di un Nuovo Errore nello Interpretare le Teorie dell'Economia Matematica' (November 1902)	Rejoinder to article 1, plus attempted proof of Pareto's theorem
3) Scorza: 'Osservazioni su alcuni Teorie di Economia Pura' (December 1902)	Original article to expand on Scorza's earlier observations
4) Scorza: 'A Proposito del Massimo di Ofelimità Dato della Libera Concorrenza' (January 1903)	Rejoinder to article 2
5) Pareto: 'A Proposito del Massimo di Ophelimità' (February 1903)	Concluding comment with references to articles 3 and 4

Chipman goes on to discuss Pareto's examination of social welfare in "II Massimo di Utilità per una Collettività in Sociologia" and the *Trattato* in the context of the polemic with Scorza. He concludes that "Pareto now takes the side of Scorza and Cassel (but without mentioning their names)" (Chipman 1976, p. 110). This is supported by referring readers to Pareto's comments that Walras reasoned in a circle about collective utility, and because Pareto (according to Chipman) suggests that the Pareto theorem "should be described as yielding 'maximum utility *for* society' as opposed to o*f* society'" (Chipman 1976, p. 110).

In relation to Pareto's interpretation of Walras, it is necessary to recall the discussion in *Part I* of his "1894 Massimo" article (examined in section 5.2). Pareto did attribute to Walras the result that aggregate additive utility valued in a numeraire good A is maximised under free competition when prices and production coefficients are fixed. However, as Pareto had not yet developed the Pareto principle, he was not attributing a result based on the Pareto principle to Walras, as Chipman suggests (1976, p. 89).

While Pareto's comments in the *Trattato* reflect an unequivocal alteration in his assessment of Walras' contribution to the study of collective economic welfare, the assessment largely reflects Pareto's changing judgement of the importance of the Pareto principle in the study of collective economic welfare. Prior to developing the principle, Pareto presented Walras' work on economic welfare as important (e.g. in Part I of the "1894 Massimo" article). However, once the principle was developed, Walras' influence is either not mentioned or is not favourably mentioned. In his initial response to Scorza's claim that Walras' and Pareto's proposition on this question is sophistry, Pareto demands that readers be informed of the discourses that are his, and those that are attributable to Walras. He makes this demand because in some things Pareto dissents entirely from Walras and because an author must be judged by his writings and not by the writings of others (Pareto 1982e, p. 489). The formal consideration of the issue under conditions of exchange in "Di un Nuovo Errore nello Interpretare le Teorie dell'Economia Matematica" contains no reference to Walras. Consequently, the distance that Pareto put between himself and Walras on this subject was not new to the *Trattato*.

Chipman's comments on maxima *for* and *of* society may superficially appear to draw on Pareto's sociological assessments, that is, on his notions of maximum of utility *for society* and *of society* in sociology. However, the maximum of utility *of society* in sociology considers the collective as a single homogeneous entity, and maximisation is considered regardless of the harm it does to some of the members of the collective.[30] This is clearly not the type of comparison that Chipman wished to draw. The most likely interpretation is that Chipman was interpreting the following footnote in the *Trattato:*[31]

> Failure to distinguish between the maximum of ophelimity *for* the community and the maximum of ophelimity *of* each individual in the community has lead certain writers to regard my demonstrations of my theories concerning the maximum of ophelimity *for* the community as reasoning in a circle. As a matter of fact, in the case of free competition, the equations of economic equilibrium are obtained by positing the condition that each individual attains the maximum of ophelimity; so that if we were to infer from those equations that every individual achieves the maximum of ophelimity, one would obviously be reasoning in a circle. But if, instead, one asserts that the equilibrium determined by the equations has the pecu-liarity of corresponding to a point of equilibrium *for* the community… one is stating a theorem that has to be demonstrated….
>
> The error of regarding my argument as reasoning in a circle has its foundation, really, in the work of Walras.
>
> (Pareto 1935, p. 1467)

This contrast is simply between collective ophelimity and individual ophelimity. The former utilises the Pareto principle (i.e. maximum of ophelimity *for* society); the latter considers individuals in isolation (i.e. maximum of ophelimity o*f* each individual of the community). If Chipman interprets Pareto's reference to the circumstance where everyone's ophelimity is maximised as a maximum *of* society, there appear to be no grounds for finding that Pareto is taking the side of Scorza and Cassel. Scorza's initial claim of sophistry simply does not appear to reflect an appreciation of the role of the Pareto principle when considering collective economic welfare, and the distinction that Pareto makes in the above quote from the *Trattato* depends entirely on the application of that principle to collective economic welfare. Consequently, there is nothing to indicate that the distinction is not justified by Pareto's analysis of collective economic welfare contained in his work between part two of the "1894 Massimo" article and the 1902 "Di un Nuovo Errore nello Interpretare le Teorie dell'Economia Matematica".

5.6 Scorza's influence on the 1906 *Manuale*/1909 *Manuel*

The text of the 1906 *Manuale* and the mathematical appendix of the 1909 *Manuel* represent Pareto's definitive formulation of his economic considerations of collective welfare (Montesano 1991, p. 125). An economic maximum is defined as "a certain position where it is impossible to find a way of moving from that position very slightly in such a manner that the ophelimity enjoyed by each of the individuals of that collectivity increases or decreases" (Pareto 1971c, p. 261; 1974c, p. 250). In this definition, variations from an equilibrium under free competition are only very slight, or "pochissimi". Gattei and Guerraggio (1991, p. 99) interpret this as an

unacknowledged acceptance of Scorza's critique because finite variations are not part of the criteria.

This section considers the substance of the Gattei/Guerraggio conclusion by examining the conservation of individuals' ophelimity fields and the mathematical and economic versions of the theorem, as presented in the *Manuale/Manuel.*

The conservation of ophelimity fields

Although Pareto defined his principle in local terms, he does examine finite displacements in the appendices of the *Manuale* (Pareto 1974c, pp. 402–04) and *Manuel* (Pareto 1971c, pp. 476–79). Since the mathematical sign of second-order variations may be positive when the first-order variation is negative, a finite variation could violate the Pareto theorem. It was therefore necessary for Pareto to establish the conditions for the field of preferences to remain stable when finite variations are considered, and to determine the mathematical form of the indicies of ophelimity where the mathematical sign for all second-order variations is negative.

By assumption, change in expected ophelimity equals change in realised ophelimity (either considered as cardinal or ordinal measures) in the *Manuale* (Pareto 1974b, p. 105). As indicated in Chapter 4, Pareto effectively established the stability of the utility field. In the mathematical appendix to the *Manuel,* he treats the matter more explicitly. One of the conditions for equilibrium to be associated with maximum economic welfare is that the budget constraint be

> integrable, that is, if the budget does not change whatever be the path followed to reach the point of equilibrium. This is the only case we study here.
>
> (Pareto 1971c, p. 469)

When finite variations were considered, Pareto specified that the virtual path of the variation from point I (free competition equilibrium) to point II (a finite distance from point I) is such that "the ophelimities at both given points are independent of the paths followed, another path having the same extremities as the path we have just considered will give identical results" (Pareto 1971c, p. 477).

However, his analysis of the conditions under which second-order variations are negative, given stability of the ophelimity field, was imperfect. Instead of directly considering the general shape of the indices of ophelimity (i.e. quasi-concave), Pareto became bogged down in the influence of substitute and complementary goods. Consequently, he neither provided a correct second-order condition, nor a correct global definition of efficiency (Montesano 1991 a, p. 2). Instead, he erroneously concluded that the finite

version of his theorem holds when goods are complementary or independent, but not when they are substitutes.[32]

If his proof of the theorem for finite variations had not been mis-specified, it is probable that Pareto would not have expressed his theorem in terms of both infinitesimal and finite variations. In support of this proposition, one need only note Pareto's discussion in the text of the *Manuale,* which refers to his Edgeworth Box diagram (Pareto 1971c, pp. 138–39, 262–63; 1974c, pp. 138–39, 250–51). In this instance he discusses finite virtual variations along a path from the point where each individual has only one good, to a point of economic equilibrium.

The economic and mathematical versions of the theorem

Another feature of the *Manuel* (but not the *Manuale)* relates to the role of the numeraire variable "Si" for individual i (presumably used to signify surplus). This new variable is a consequence of Pareto's distinction between the mathematical and economic meaning of his theorem on collective economic maximisation. The variation in "s" is the first-order change in ophelimity valued in good A. Therefore, a small change in an individual's consumption bundle results in an equivalent change in ophelimity, which can be considered in terms of a variation in good A to convert heterogeneous ophelimities of individuals to homogeneous 'surplus'. Consequently, the surplus for the collective "S" associated with a variation from one economic point to another may be considered as the sum of the change in the surplus of all the individual members of the collective, expressed in good A equivalents.

$$dS = \sum_{i=1}^{n} ds_i \,, \qquad [4]$$

where the relationship between ophelimity and the numeraire (i.e. $dF_i = S_i(\varphi_{ia})$ establishes that $ds_i = (1/\varphi_{ia})\, dF_I$.

> Hence expression [3] or its equivalent [4][33] represents the quantity of good A which, if distributed to the members of the collectivity, would provide each of them the same pleasure he obtains from the consumption of goods dx_1, dy_1... When the value of dS is zero, we no longer have any goods to distribute to the collectivity. If we wish to increase the share of some of them, we can only do so by decreasing the share of some others in such a way that the sum of the shares remains constant, since $dS = 0$. That is why this equation can be used to define the maximum ophelimity for the collectivity.
>
> (Pareto 1971c, pp. 480–81)

The basis of the 'economic meaning' of the theorem dates back to the 'minimal resource' criterion for efficiency associated with the discussion of residuals in the "1894 Massimo" article. The basis of the 'mathematical' maximisation

of ophelimity dates back to Pareto's treatment of exchange in his 1902 "Di un Nuovo Errore nello Interpretare le Teorie dell'Economia Matematica". The 1909 *Manuel* reinforces the view that the two approaches to collective economic welfare are equivalent.

In 1943, Maurice Allais called Pareto's economic examination of collective economic welfare the "equivalent surplus" approach (Allais 1985, p. 168). This accurately captures the two distinct elements to Pareto's work in this area. That is, his characterisation of the economic expression for ophelimity maximisation in terms of a change in "S" (i.e. surplus), and his argument that this was 'equivalent' to the more abstract mathematical expression without reference to a numeraire good.

Pareto's equivalent surplus is also expressed in first-order terms. This may be explained in two ways. First, as it is 'equivalent' to the mathematical expression of the Pareto theorem, it too is restricted to first-order variations. Second, equivalent surplus is not readily considered in terms of finite variations. As Montesano (1997a, p. 2) notes, it was Allais who recognised this problem and devised his alternative 'distributable surplus'[34] so that correct second-order conditions could be established to verify the Pareto theorem for both infinitesimal and finite variations.[35]

It may therefore be concluded that Pareto's definition of the Pareto principle in the *Manuale/Manuel* is limited to small variations because of his mathematical error in the consideration of the second-order conditions for the Pareto theorem. Related to this is his specification of the economic or surplus version of his theorem in terms of 'equivalent surplus' rather than 'distributable surplus'.

It would be uncharitable to attribute Pareto's mathematical error to Scorza. Also, the central element of Pareto's specification of the economic version of the Pareto theorem in terms of residuals predates the Scorza polemic. Finally, discussion of virtual economic movements in the text of the *Manuale* suggests that Pareto was seeking a global generalisation of the theorem.

5.7 Conclusion

In this chapter it has been shown that Pareto's work on the theorem that we now refer to as the first law of welfare economics developed from its inception in 1894 until the 1909 *Manuel*. In response to Scorza's accusation of 'sophistry', Pareto responded with an important analysis of 'exchange' and collective welfare. However, there has been a tendency, by Chipman (1976) and Gattei and Guerraggio (1991), to ascribe to Scorza a not insubstantial influence on the work that Pareto published subsequent to the public phase of their dispute, and that this influence was unacknowledged by Pareto. Such claims are exaggerated. More generally, Scorza's dispute with Pareto, and the former's subsequent influence on the latter's work, have been subject to some misinterpretation. The evidence does not support the propositions that Pareto

talked at cross purposes with Scorza, or that the specification of the Pareto principle in the *Manuale* in terms of small variations is due to Scorza's influence. This emphasis on small variations is a consequence of two factors that have little or nothing to do with Scorza. First, Pareto's treatment of the 'mathematical expression' of the Pareto theorem was mathematically flawed. Second, his consideration of the 'economic expression' of collective economic welfare was not focused on 'distributable surplus' (which lends itself to consideration of finite variations) but on 'equivalent surplus'.

Obviously such a vigorous dispute would have had some impact on Pareto. However, the influence is too subtle to determine with any certainty. Probable influences include the consideration of second-order variations attempted in the mathematical version of the Pareto theorem in the *Manuel,* and the requirement for finite variations to be considered without violating the conditions of free exchange.

The debate is also important from a methodological perspective. It emphasises that Pareto's consideration of collective economic welfare was in terms of the mechanical analogy, where variations are examined along a timeless path in circumstances where the ophelimity field is stable and conserved. In contrast, Scorza's approach appears to be a failed preliminary attempt to incorporate the impact of time on economic decisions and welfare. In absolute terms, Scorza's goal is admirable. However, science usually develops incrementally, and progress must be considered in relation to the prevailing state of economic theory. In this context, Pareto's use of the polemic to fill in some of the gaps in the theory of collective economic welfare (rather than being distracted by Scorza's concern with the treatment of time in economic theory) enabled further incremental improvement in the quality of economic theory.

Appendix 5.1

Equations related to collective economic welfare

"Il Massimo di Utilità dato dalla Libra Concorrenza"

1 UNIT PRICES OF PRODUCTION

$$p_b = b_t p_t + b_v p_v + \ldots; \; p_c = c_t p_t + c_v p_v + \ldots \qquad [i]$$

2 PRICES OF GOODS AND SERVICES UNDER FREE COMPETITION

$$(\varphi_{i\,b} / \varphi_{i\,a}) = p_b, \; (\varphi_{i\,c} / \varphi_{i\,a}) = p_c, \ldots \qquad [ii]$$

Table 5.2 Notations for equilibrium and economic welfare equations

m = number of consumer goods	n = number of productive services
θ = number of individuals in the economic system	
A, B, ... consumer goods	T,V, ... productive services
1, p_b, ... prices of consumer goods	p_t, p_v, ... prices of productive services
φ_{ia}, φ_{ib},... individual i's elementary ophelimity from goods A, B, and C	φ_{it}, φ_{iv}, ... individual i's elementary ophelimity from T, V, and ...
a_t, a_v, ..., input coefficients for productive services t, v... to produce one unit of A	b_t, b_v, ..., input coefficients for productive services t, v, ... to produce one unit of B
q_{ia}, q_{ib}, ..., quantity of individuals' i's exchange of consumer goods A, B ...i.e. excess demand	q_{it}, q_{iv}, ..., quantity of individuals' i's exchange of productive services T, V, ...
Q_a, Q_b, ..., Σ of quantities of all individuals exchange of consumer goods A, B ...	Q_t, Q_t, ..., Σ of all individuals exchange of productive services T, V, .

3 COLLECTIVE CHANGE IN ADDITIVE UTILITY/OPHELIMITY EXPRESSED IN GOOD A[36]

$$[(\partial Q_a / \partial a_t) + p_b (\partial Q_b / \partial a_t) + p_c (\partial Q_c / \partial a_t) + \dots] d a_t \qquad \text{[iii]}$$

4 COLLECTIVE CHANGE IN ADDITIVE SPENT UTILITY/OPHELIMITY EXPRESSED IN GOOD A

$$[p_t (\partial Q_t / \partial a_t) + p_v (\partial Q_v / \partial a_t) + \dots] d a_t \qquad \text{[iv]}$$

5 THE LAW OF ONE PRICE

$$(\varphi_{1b}/\varphi_{1a})=(\varphi_{2b}/\varphi_{2a})=\dots=p_b;\ (\varphi_{1c}/\varphi_{1a})=(\varphi_{2c}/\varphi_{2a})=\dots=p_c;\ \text{etc.} \qquad \text{[v]}$$

"Di un Nuovo Errore Nello Intrepretare le Teorie dell'Economia Matematica"

6 OPHELIMITY AND MONOPOLY PRICING (OF GOOD B)

$$\varphi_{i\,a} = (1/p_c)\varphi_{i\,c} = (1/p_d)\varphi_{i\,d} \dots \neq (1/p_b)\varphi_{i\,b} \qquad i = (1,2,\dots\theta) \qquad \text{[vi]}$$

where p_b conforms to the constraint: $D(q_b p_b) / D\, p_b = 0$.

7 FREE EXCHANGE CONDITION I: THE CHANGE IN THE BUDGET CONSTRAINT

$$q_{i\,a} + p_b\, q_{i\,b} + p_c\, q_{i\,c} + \ldots = 0 \qquad i = (\text{individuals } 1,2,\ldots\ \theta) \qquad \text{[vii]}$$

8 FREE EXCHANGE CONDITION II: MARKETS FULLY CLEAR

$$q_{1\,j} + q_{2\,j} + \ldots + q_{\theta\,j} = 0 \qquad j = (\text{goods A, B, } \ldots\ m) \qquad \text{[viii]}$$

note: As the purchase and sale of goods have the opposite mathematical sign, the sum of all individuals' exchange of each specific commodity is zero when demand equals supply, i.e. when markets fully clear.

9 CHANGE IN INDIVIDUAL OPHELIMITY

$$dF_i = \sum_{j=A}^{m} (\varphi_{ij}\, dq_{ij}) \qquad \text{[ix]}$$

10 FREE EXCHANGE CONDITION I FOR INFINITESIMAL VARIATION: THE BUDGET CONSTRAINT

$$dq_{i\,a} + p_b\, dq_{i\,b} + p_c\, dq_{i\,c} + \ldots + q_{i\,a} + dp_b\, q_{i\,b} + dp_c\, qi_{\,c} = 0 \qquad \text{[x]}$$

11 FREE EXCHANGE CONDITION II FOR INFINITESIMAL VARIATIONS: MARKET CLEARING

$$dq_{1j} + dq_{2j} + \ldots + dq_{\theta j} = 0 \qquad \text{[xi]}$$

12 INFINITESIMAL VARIATIONS FROM A POINT OF COMPETITIVE EQUILIBRIUM

When the equality between relative prices and ratio of elementary ophelimity (i.e. equation [ii]) is subject to the law of one price (i.e. equation [v]), equation [x] may be modified to

$$1/\varphi_{ia}\,\{\varphi_{ia} dq_{i\,a} + \varphi_{ib}\, dq_{i\,b} + \varphi_{ic}\, dq_{i\,c} + \ldots\} + q_{i\,a} + dp_b\, q_{i\,b} + \ldots = 0 \qquad \text{[xii]}$$

The term in brackets is the change in individual economic welfare from equation [ix]. Therefore, by summing individuals' equation [xii] (and taking account of the market clearing constraint imposed by equation [viii]), Pareto defined the essential feature of a point of competitive equilibrium from a collective economic welfare position:

$$\sum_{i=1}^{\theta} (1/\varphi_{i\,a})\, dF_i = 0 \qquad [xii']$$

13 FINITE VARIATIONS IN EXCESS DEMAND (QUANTITIES)

Excess demand changes from (q_{ia}) at point I, to $(q_{ia} + \Delta q_{ia})$ at a point on a path towards point II, where $\Delta q_{ia} = (a_i t')$ etc. [xiii]

14 FINITE VARIATIONS IN PRICES

Prices change from (p_b) at point I, to $(p_b + \Delta p_b)$ at a point on a path towards point II, where $\Delta p_b = (\tau_b t')$. [xiv]

Collective economic welfare: Pareto's equivalent surplus

$$U_i (A_i + \delta A_i, B_i + \delta B_i, \ldots + T_i + \delta T_i, +\ldots) = U_i (A_i + \delta si, B_i, \ldots + T_i, +\ldots) \qquad [xv]$$

The left-hand side of the identity corresponds to a point (point II) on an index of ophelimity after a variation from a point of equilibrium under free competition (point I). The right-hand side of the identity represents ophelimity where the commodity mix is the same as under free competition, except that the quantity of good A (i.e. equivalent surplus s) is adjusted until the right-hand side of the identity is on the same index of ophelimity as point II. That is, when both sides of the equation are iso-hedonous. When point I is an equilibrium point under free competition, ds is always negative.

Collective economic welfare: Allais distributable surplus

$$U_i(A_i+\delta A_i-\delta\sigma_i, B_i+\delta B_i, \ldots + T_i+\delta T_i, +\ldots) = U_i(A_i, B_i, \ldots T_i, \ldots) \qquad [xvi]$$

The right-hand side of the identity corresponds to an initial point of equilibrium under free competition (point I). The left-hand side of the identity is iso-hedonous with the right hand side of the identity. It indicates how much distributable surplus σ is required after the variation from a point I to another point II to fully compensate all members of the collective for any

losses from the move away from free equilibrium. The compensation–ds is not the amount required to move back to point I, but is the minimum compensation required to achieve an outcome that is iso-hedonous with point I.

6 *Les Systèmes Socialistes* and Buchanan's constitutive elements of economic policy[1]

6.1 Introduction

Les Systèmes Socialistes was originally published in two volumes in 1901 and 1902. Like the *Cours,* it derives from lectures that Pareto had given at the University of Lausanne. It includes a framework for the analysis of socialist systems, and a critique of social theories and doctrines that analyse and/or promote socialism.

The aim of this chapter is to compare and contrast the general analytical framework employed by Pareto to examine political and social selection in the *Systèmes* with the five 'constitutive' elements of public choice specified by James Buchanan (1987) in "The Constitution of Economic Policy".[2] These are: methodological individualism, *homo œconomicus,* and politics-as-exchange, plus two "normative" elements—the constitution of economic policy and constitutional contractarianism—which are related to the rules of political choice.

Since the *Systèmes* is largely a study of political actions influenced by economic interests (and sentiment), some methodological insights are revealed by comparing it with the dominant contemporary economic approach to public sector decision-making and politics. It is also intended that the present study add to the very limited number of critical evaluations of the *Systèmes* published in English,[3] which is no doubt partly due to the fact that an English version of the book is not available.

This is not the first study to compare Pareto's framework with that developed by the public choice school. Jurgen Backhaus (1978) has already written about *Pareto on Public Choice.* However, his study is exclusively based on Pareto's *Trattato* (first published fourteen years after the *Systèmes).* Maneschi (1993) has also made general observations about the similarities between Pareto's comments on protectionism and public choice. However, since the *Systèmes* involves a more elementary analytical framework than the *Trattato,* elements that are the same, similar, different or opposed to public choice political economy can be more readily identified from the *Systèmes.*

Furthermore, by focusing on the *Systèmes,* an additional perspective on

the evolution of Pareto's sociological theory is revealed. In the *Cours,* the influence of social evolution on the economic phenomenon is largely incorporated into applied economics. In the *Trattato,* the elements that related to social evolution were integrated within his general analysis for developing hypothetical propositions. These elements of social evolution in their Paretian context derive from the *Systèmes.* Consequently, the *Systèmes* represents an important intermediate step in the development of Pareto's rapport between economics and sociology, as defined by the mechanical analogy.

The structure of this chapter is as follows. Contextual information on Pareto's general conception of sentiment and socialist systems is provided in Section 6.2. It is suggested that he defined 'socialism' so broadly that an analytical framework was developed which was broad enough to analyse all social systems, not just socialism. Buchanan's approach to public choice theory is briefly reviewed in Section 6.3, with emphasis placed on the 'political' system rather than broader 'social' system. Sections 6.4–6.6 consider the positive basis of Pareto's *Systèmes* and Buchanan's "Constitution of Economic Policy". Methodological individualism is discussed in Section 6.4. Section 6.5 compares the role of economic interests and sentiments in the *Systèmes* with Buchanan's analysis of the behaviour of *homo œconomicus* in political fora. The 'politics-as-exchange' aspects of public choice are compared to the imperfect political 'selection' approach of the *Systèmes* in Section 6.6. Section 6.7 deals with normative issues. The conclusion is contained in Section 6.8.

6.2 Sentiment and socialist systems

Following the release of the *Cours* and the commencement of his lectures in sociology, Pareto's interest in the inclusion of sentiment in works of social science was heightened. In the preface to the *Manuale,* it is noted that the intent of the *Systèmes* was to study the effect of certain beliefs on men and women, and how these beliefs are born (Pareto 1974c, p. 6). This explains the many references in the *Systèmes* to the term 'sentiment', and the inclusion of chapter subheadings such as "The influence of sentiment". In the process, Pareto "furnishes a notable contribution to the foundation of the sociology of knowledge and of political science" (Busino 1974a, p. 26).

The starting point for the methodology adopted in the *Systèmes* is the acknowledgement of the difference between the objective (concrete phenomena) and the subjective (phenomena which our 'spirit perceives'). Distinguishing between the two is often difficult.[4]

In recognition of this, Pareto explicitly acknowledged his own sentiments, and attempted to negate their influence on his study.

> My sentiments take me towards liberty…[and] for fear of giving too much weight to the arguments in favour of liberty, it may be that I have not given

> enough weight to them. In the same way, it is possible that for fear of undervaluing sentiments that I do not share, I gave to them, to the contrary, too much value. In every case, not being perfectly sure that such a source of error does not exist, I felt obliged to signal it to the reader.
>
> (Pareto l974b, p. 129)

Unlike in the *Cours,* there is no presumption that sentimentally inspired actions will generally reconcile with the logical actions of *homo œconomicus* in materially prosperous societies (see Chapter 3). However, neither are there declarations, such as in the *Trattato,* that under the logical-experimental method, "we are not called upon to declare our sentiments either explicitly or by implication" (Pareto 1935, p. 23). Consequently, the *Systèmes* marks an intermediate phase in the development of Pareto's system-wide framework.

In relation to socialism, Pareto was concerned that the term was particularly vague and cannot be well defined (Pareto 1974b, p. 211). Its influence was great because it acquired sentimental association. Pareto tried to define socialist systems at a level precise enough to enable scientific investigation. This was achieved by identifying a hierarchy of characteristics associated with socialist systems.

The defining characteristic of socialism for Pareto is that the ownership of private property is constrained. "Socialist systems shall be characterised by the fact that they don't permit anything but a minimum of private property" (Pareto 1974b, p. 212). The reference to a "minimum of private property" recognises that no social system functions on a sustained basis when private property is completely prohibited. Three broad types of restrictions on private property are considered (Pareto 1974b, p. 213). Type 1 is where all property is communally owned. Type 2 is where no private ownership of land or capital is permitted, but there is no community prohibition on private ownership or private exchange of consumer goods and services. Type 3 is where private ownership of land and capital is permitted, but private ownership of consumer goods and services is restricted.

Restrictions on the ownership of goods and services consist of actions taken in the period immediately preceding consumption, in order to modify the pattern of consumption by individuals or groups across society. In more contemporary language, Pareto's type 3 socialism involves redistribution of income, and is divided into three distinct forms (Pareto 1974b, pp. 213–14). Type 3a socialism refers to a system where goods are only exchanged on a voluntary basis. Type 3b socialism refers to a system where individuals initiate redistribution by applying coercive force directly to others to appropriate their goods. Type 3c socialism refers to a system where the collective, or the government of the collective, takes the goods of some individuals or social groups (or classes), and redistributes them to others.

Therefore, types 3a and 3b socialism are effectively unregulated and permit private ownership and exchange of productive services (e.g. capital and

Therefore, types 3a and 3b socialism are effectively unregulated and permit private ownership and exchange of productive services (e.g. capital and land) and consumer goods and services. All members of a type 3a socialist society accept the assignment of property rights. At least some members of a type 3b socialist society do not limit their economic actions to voluntary exchange under given private property rights, and use coercion to forcefully re-assign property rights over consumer goods and services (and, by inference, over wealth in the longer term). The type 3c socialist society reveals government action to redistribute goods and services, including redistribution under what Busino (1974a, p. 19) calls a bourgeois socialist government.

> It is only by means of the law that communists and socialists want to change the distribution of wealth, to give to some what they take from others; and, under this rapport, their systems are not at all different, as is often observed, from the various protectionist systems. Properly speaking, they represent socialism of the entrepreneur and capitalist.
>
> (Pareto 1974b, p. 218)

Based on his definition of socialism and his classification of various types of socialism, Pareto subjects a number of 'socialist systems' to scrutiny. 'Religious systems' relate to doctrines and established social orders justified in reference to some divine purpose. 'Metaphysical systems' relate to doctrines and established social orders justified in reference to metaphysical notions about the essence of community, communism, etc. 'Scientific systems' concern systematic logical investigations into the economic organisation of the state, supported by a study of history, with the well-being of humankind considered within real constraints. 'Mixed systems' have the pretence of a scientific system, but closer inspection reveals that they are founded on sentiment rather than science.

Given Pareto's broad definition of socialism, and the broad range of doctrines and treatises on socialist systems that Pareto wished to examine, it was necessary to develop a broad analytical framework. It had to deal with political actions that restrict private ownership of productive services and/or directly redistribute income on an in-cash or in-kind basis, through public and/or private actions. This was achieved by recognising the substantive features or general regularities associated with the process of social evolution. As outlined in Chapter 2, this focus on the substantive factors of social evolution was also to become an important element in the development of general sociology as a theoretical system designed to deal with hypothetical propositions, rather than an essentially descriptive discipline.

6.3 Romance and democracy

James Buchanan began his academic career as a 'regular' public finance economist (Buchanan 1995, p. 1). However, in the course of his research in the late 1940s he discovered the work of Knut Wicksell, which led Buchanan to question the political models that public finance economists assume when considering fiscal issues. This marks the start of his shift in analytical focus that ultimately developed into public choice political economy.

His seminal work, jointly written with Gordon Tullock, is generally considered to be *The Calculus of Consent* (Buchanan and Tullock 1962). It was largely a reaction against the representation of majoritarian democracy as an entity. In place of this, voting rules were explicitly examined in relation to the constitutional structure of government processes "to provide an argument for choices among the rules of voting" (Buchanan 1995, p. 2). The focus of analysis was on the choice environments associated with political activity.

Following the publication of *The Calculus of Consent,* a "Committee for the Study of Non-Market Decision Making" was established. It was represented by scholars from several disciplines with a common interest in non-market choices, and the Committee eventually evolved into the Public Choice Society (Buchanan 1995, p. 3). As a result of Buchanan and Tullock's association with the University of Virginia and the Virginia Polytechnic Institute, and the expanding interest in the public choice approach to political economy, their approach has also come to be known as the 'Virginia School' of public economics.

Buchanan regarded the development of public choice as the commonsense application of economics to political conduct with the intent of eliminating romantic notions from academic perceptions of democracy.

> To some extent, people then [in the 1950s] and people now think about politics romantically. Our systematic way of looking at politics is nothing more than common sense.
>
> (Buchanan 1995, p. 4)

> If you take the story as I've given you, you recognise that the traditional way we look at politics had a lot of romance in it, then Public Choice comes along and removes the romance.
>
> (Buchanan 1995, p. 6)

By reason of association, there is some basis to expect a potentially complementary relationship between the theoretical approaches of Pareto and Buchanan. Both are founded on 'realistic' (as opposed to romantic or sentimental) views of politics, including democratic political systems. Buchanan also largely attributes the loss of his romantic views of politics to the influence of the Italians (some of whom were very much influenced by

Pareto, or were contemporaries such as the editors of the *Giornale degli Economisti).*

> I spent a year in Italy (1955–56). It changed my perspective on politics because I think a lot of Americans, of my generation anyway, still had a very romantic view of politics. Italians, for me at least, served the function of introducing a lot of skepticism, a lot of questions. Had I not spent that year in Italy, I might not have ever really been able to come to the critical realistic view of politics as I did.
>
> (Buchanan 1995, pp. 1–2)

In view of Pareto's and of Buchanan's mutually sceptical view of political conduct and the Italian influence on Buchanan's work, it is likely that their approaches to politics can be profitably compared.

6.4 Methodological individualism

Buchanan suggests that comparative studies of choice environments based on methodological individualism enable public choice economists to determine the extent to which individuals' actions are environmentally influenced. Underlying this is the view that the confining limits to the process of interaction are institutionally determined. Reference to the 'polity' or 'the economy', as if they were value maximising entities, is alien to public choice economists because it goes beyond the methodology of individualism, by requiring the introduction of external criteria to evaluate actions. Consequently, methodological individualism is a central methodological element of public choice studies of political acts, because it eliminates the need for external criteria (Buchanan 1987, pp. 244–45).

The methodological basis for the analysis of positive issues in Pareto's *Systèmes* is also rooted in individualism. As Bousquet (1994, p. 41) noted in 1928, Pareto's sociological framework was based on his economic system, particularly aspects devoted to hypothetical propositions. This is also endorsed by Backhaus (1978, p. 5) in the context of the *Trattato.* In large part, this is because Pareto developed his theoretical studies in both disciplines from a mechanical analogy. Individuals are characterised as the molecules of a social system, and he always emphasised that they are heterogeneous elements in motion. For example, Pareto's discussion of wealth creation in the *Systèmes* notes that "the molecules of which the social aggregate is composed don't stay at rest; some individuals enrich themselves, others impoverish themselves" (Pareto 1974b, p. 130). Pareto also emphasised the need to study society in a way that emphasises individuals' heterogeneity.

> Some affirm that all social ills come from alcoholism, others that they come from 'immoral literature' and others, the greatest in number, accuse

> the unequal distribution of income. They would go to absurd lengths to be able to discount the necessity of admitting that in the human species, as in all living species, individuals are not born equal, they have diverse characteristics and certain individuals are more suited to the environment in which they live. They easily believe what they want to believe. Humanitarians don't study the world as it really is, they create an imaginary world, that which their sentiments desire.
>
> (Pareto 1974b, p. 554)

The central analytical feature of the *Systèmes* is the theory of elites. This theory commences with the above recognition of individual heterogeneity, and identifies a tendency for groups of like-minded individuals to form and interact in order to pursue economic and other interests. This theory builds on the individual elements of the group and examines individuals' mobility within and between groups in recognition of (imperfect) social and political 'selection'. Consequently, the theory of elites does not require external criteria to evaluate individual acts.

Buchanan would also support this interpretation. In "'La Scienza delle Finanze': The Italian Tradition in Fiscal Theory", Buchanan (1960, p. 37) associates the ruling-class approach to fiscal theory with Pareto and emphatically characterises consideration of political decision-making under this approach as individualistic.

Furthermore, Pareto's incorporation of sentiment as an element in social systems that impacts on political actions is not inconsistent with individualism. Sentiment is a common element to all social systems (with only the form in which the sentiments are manifest varying between systems), and it is developed through ongoing human interaction. If the individualistic nature of the *Systèmes* is to be contested, it would concern Pareto's direct and indirect references to the happiness of humankind and well-being. However, such comments are essentially confined to normative issues, and are considered in Section 6.6.

6.5 *Homo œconomicus*

Buchanan's *homo œconomicus* interprets economic self-interest as a positively valued good. Through market processes, individual values may be promoted when certain conditions are realised, e.g. when markets are competitive. In political fora, where the choice environment is constrained, economic self-interest may be a positive influence on political actions, and this potential influence may be examined by testing verifiable hypotheses.

There is no presumption that cardinal or ordinal valuations of economic self-interest are possible in political choice environments, only that economic self-interest is positively valued. Neither is there any presumption that

economic self-interest dominates other influences on political choices, or that its pursuit through the political process is evil.

Consequently, rather than treating the public sector and government as a single entity and studying the economy as an aggregation, Buchanan examines the political process from the perspective that self-interest influences political choice.

However, the actions of man in 'concrete' political contexts, or what Buchanan may call different institutional environments, is beyond the scope of *homo œconomicus* in Pareto's work, because it raises factors that cannot be associated with a stable ophelimity field. As Pareto notes in the *Systèmes:*

> after having separated, by means of analysis, the diverse parts of a real phenomenon, in order to study them in isolation, one must make a synthesis of them, to bring them together again, in order to have an idea of reality. Political economy can avoid the study of appropriation sanctioned by the law, but this study must be undertaken by another science.
>
> (Pareto 1974b, p. 218)

Prior to writing the above comment, Pareto noted in the *Cours* that economists have refrained from studying spoliation (where material interests are pursued by appropriating the property of other individuals, or the property of other groups of individuals), but was critical of this position. It was being like "amateur entomologists who are interested only in the most beautiful butterflies. The serious naturalist, on the other hand, does not avert his gaze from any insect, however repulsive it may be" (Pareto, cited in Finer 1966, p. 115). However, from the *Systèmes* onwards, spoliation was annexed from applied economics and added to social theory.

As a consequence, there is little to be learned by comparing Pareto's *homo œconomicus* with Buchanan's definition of homo*œeconomicus.* A far more profitable line of investigation is to compare the role of self-interest in political processes in the *Systèmes* with the behaviour of Buchanan's *homo œconomicus* in the political process.

At the very broad level, there is an obvious similarity. This is evident from Pareto's discussion of the French and Italian governments' failure to adopt liberal economic policies:

> Economists have been wrong to give too much importance to reasoning, as a determinant motive for human actions. They believe that, having demonstrated the emptiness and errors of their adversaries' theories, they would be reduced to impotence…[However,] in France all political economy was liberal, [but]…protectionism has triumphed without meeting serious opposition. The same phenomenon has happened in Italy…. So in France, as in Italy, the battle was not fought on the grounds of doctrine, but on that of interests.
>
> (Pareto 1974b, p. 224–25)

More generally, there is a high degree of coincidence in the subject matter of Pareto's theory of spoliation (which first appeared in the *Cours)* by individuals and/or governments under types 3b and 3c socialist systems, and public choice political economy. Since Pareto's spoliation depicts the appropriation of others' goods, and recognises that this may be done politically, it is directly concerned with the role of economic interest in political actions.

Pareto observes that in societies that permit private property, wealth can be acquired in two ways: either by producing it with labour and capital, or by despoiling riches produced by someone else. This latter case of spoliation is not presented in the *Systèmes* as a mere sporadic occurrence, but as a general and constant phenomenon (Pareto 1974b, pp. 216–17). It has developed to the extent that members of the collective are blind to it, since spoliation is generally undertaken indirectly without breaking the law (although direct spoliation by individuals or groups through violence or fraud is not uncommon either).

Pareto presents taxes, subsidies and industry protection as common forms of legally sanctioned spoliation in democratic societies. This is portrayed as a consequence of politicians' need to be re-elected, and recognises that to some extent politicians serve the private interests of their support-base while giving the impression of serving the general interest (Pareto 1974b, p. 201–02).

> Taxes are simply the sum that governments, directly or indirectly, withdraw from the aggregate of which they are part and from this they extend their power; in summary, it is used according to their reason, their prejudices, their interests and at times their whim.
>
> (Pareto 1974b, p. 216)

However, the theory of spoliation does not imply that people necessarily enter legislatures with the intention of enriching themselves; it simply suggests that private patronage and private interest is juggled with perception of the public interest in political fora. This is essentially the same position as that taken by the public choice school, when Buchanan explicitly states that he does not impute "evil or malicious motives to political actors" (Buchanan 1987, p. 245).

Another similarity to public choice theory is Pareto's contention that spoliation is achieved most effectively when the common bonding element that holds a group together is a readily recognisable character. Generally, groups have a readily recognisable character (such as race, religion, occupation, etc.) when they are not spread out too far and can pursue their interests more effectively as an entity.

Group formation is portrayed as part of the struggle for existence in the face of social conflict. Groups select elite elements, which are characterised as an aristocracy in the etymological sense (Pareto 1974b, p. 131), to provide

authority and leadership to compete with other groups to achieve common goals. Since the interests of groups in society are not always complementary, groups are often in competitive conflict and attempt to acquire influence over public resources. While all groups organise themselves with the aid of elites, the primary focus of Pareto's theory of elites in the *Systèmes* concerns elites that engage in political activities to the benefit of their group or class. In contemporary society, this would include political parties and interest groups. As Pareto viewed elites in the political process as a phenomenon which applies across all types of political systems (including democratic) the term 'political selection' is used in this chapter with reference to intra-and inter-elite struggle that is linked to political processes. However, political selection should not be interpreted as perfect in the sense that the best and most able always constitute elites. Social evolution is a very imperfect process.

Pareto's own example of effective grouping to support economic interests is the makers of clothing, who contrast with the consumers of clothing, who are too dispersed to be an effective force (Pareto 1974b, p. 221). This effectiveness with which groups are able to pursue their economic interest, whether by legal or illegal means, has also been analysed by the public choice school in the context of rent-seeking behaviour.[5]

There is also some methodological similarity between Pareto's approach to grouping and the approach taken by Buchanan (1965) in "An Economic Theory of Clubs". However, the pursuit of economic interest is represented differently under the two approaches. Buchanan's club analysis considers the optimal club membership when club members jointly consume partial public goods, but where the publicness of the benefits can be, and are, confined to club members. Consequently, Pareto's group-based theory of spoliation does not anticipate the economic theory of clubs. He did not deal with partial public good attributes, and his relative emphasis on the assignment of costs is different. The theory of spoliation considers localisation of economic benefits to a class or group (as in club theory), but primarily assigns the cost associated with acquiring that benefit to individuals from outside the group (contrary to club theory). Nevertheless, the theories of spoliation and clubs are complementary. The differences between the two approaches are generally due to their different emphases.

It now remains to consider whether the addition of the sentimental element to Pareto's theory of spoliation disturbs the similarities and consistency between the *Systèmes* and Buchanan's representation of *homo œconomicus* in political institutions.

Pareto considered that the act of spoliation conflicts with the human sentiment to abstain from appropriating others' goods (Pareto 1974b, p. 221). However, to avoid direct conflict with this sentiment, he suggests that "most men" find indirect ways to despoil others and rationalise such actions. The logical veracity of these reasons may be poor, but when personal

convictions are derived from one's own interests, "one is preaching to the converted" (Pareto 1974b, p. 221). All that is required is

> An empty phraseology, formulas that are futile, pompous and sentimental, abstract and repetitive phrases, vague and uncertain expressions whose sense is never determinate: and this is all that men ask for when they search, not for the truth, which they would not know what to do with, but only for a justification for actions that are to their advantage or simply to their liking.
> (Pareto 1974b, pp. 221–22)

Such rationalisations are not explicitly considered in Buchanan's public choice. In a specific institutional setting, public choice calculus may be rigorous, deterministic and verifiable when human motivation or sentiment is unchanged. Pareto's generalisations for "most men" cut across a range of social systems that do not permit a high level of theoretical determinism in given institutional settings. Furthermore, since personal convictions are not exclusively linked to self-interest, Pareto's inclusion of sentiment in the *Systèmes* is not limited to rationalisations of economic interest.

Consequently, Pareto and Buchanan specify different scopes of human behaviour to investigate, and develop appropriate methodologies to address questions relevant to their various scopes. Consistent with the methodology outlined in Chapter 2, Pareto is only concerned with general uniformities, even if this is associated with a relatively small proportion of human action. Buchanan's narrow institutional-specific approach facilitates a high degree of theoretical determinism through the application of economic calculus to political acts. Provided that human motivation is unchanged, deterministic public choice outcomes may account for a greater share of human action within a constrained institutional choice environment than under Pareto's general analysis.

However, when considering the boundaries beyond which theoretically determined outcomes diverge irreconcilably from the concrete, it is useful to recall Pareto's warning that there "is a determinism that, wanting to be absolute, becomes false" (Pareto 1974b, p. 184).[6] In contrast to Pareto, Buchanan is averse to the diminished determinism of sociology in the political context. In his "'La Scienza delle Finanze'", Buchanan identifies the Italian approach to fiscal policy that:

> owes its continuing importance to Pareto and stands directly opposed to the 'democratic' model…. Fiscal activity is explained solely in terms of the behaviour of the ruling group…. Certain theorists, especially Borgatta, the most direct follower of Pareto, reject any attempt to use economic analysis in the explanation of fiscal activity. To Pareto and to Borgatta state decisions are made by a different sort of calculus, and there is no such thing as a 'science of finance' analogous to economic

> science. The explanation of fiscal activity should be sought instead in the murky science of sociology.
>
> (Buchanan 1960, p. 36)

6.6 Politics-as-exchange or politics-as-power?

To avoid the indeterminacy of the 'murky science', Buchanan characterises individuals' efforts to secure privately defined interests on a collective basis as an exchange process. This is justified because it is through political processes that "individuals exchange shares in contributions toward the cost of that which the community desired" (Buchanan 1965, p. 246). While this is presented as a positive element of public choice, it is justified on the basis of Buchanan's normative goals; namely, to counter the exaggeration associated with analysis of the politics-as-power variety. Coercion in the political processes is recognised, but is (subjectively) considered as 'voluntary exchange' if the constitution of rules under which the political system functions are fully supported by the individual and permit such coercion. Consequently, the notion of voluntary political exchange requires *a priori* acceptance of the normative underpinning of public choice political economy. In contrast, Pareto focuses on access to political power where constitutional rules and political institutions are not accorded special status; they are just outcomes of social evolution and of the associated processes of political selection (i.e. elites) and social selection.

To fully compare politics-as-exchange with politics-as-power, it is useful to consider them in terms of 'form' and 'substance' (as Pareto does for his elite theory).

Form and substance

The 'form' of political exchange within Buchanan's public choice approach would equate to actual choices in particular constitutionally defined choice environments (i.e. political institutions). The actual choices studied in this approach generally have some relationship to the exchange of shares that individuals contribute to publicly funded services. The 'substantive' element of Buchanan's public choice is that a change in the choice environment will result in individuals, with unchanged motives, making different choices. Consequently, public choice analysis involves identifying and mapping the different choices with respect to individuals' economic interests for a range of choice environments, typically bureaucracies, elections or other institutions where the rules of choice vary. The method of analysis is 'deductive' modelling of *homo œconomicus* to establish hypotheses, and econometric testing of these hypotheses.

The term 'form' in the *Systèmes* concerns the precise manifestation of elites' struggles, including the formal arrangements associated with the process of governing. Its 'substance' concerns the general uniformities of ongoing change that cut across different forms of elite struggles. The method used is generally 'inductive' observation

through history. The form that elite struggle takes is considered by Pareto in terms of 'social equilibrium', which may be either stable or unstable.

Stable social equilibrium is characterised by political, economic and social actions in the absence of social change. Consequently, social actions are undertaken without any deterioration of the power and authority of the existing elite, and spoliation continues unabated to the benefit of the groups represented by the dominant elite. Stable equilibrium also requires a Machiavellian balance of strength and benevolence on the part of the dominant class, resulting in consent and/or submission on the part of dominated classes. Pareto's discussion of elites often highlighted the use of force, and its relation with strength. It is equally important, however, to recognise Pareto's contention that stable equilibrium does not entail unlimited force being exercised by the governing elite.

> Don't confuse the benevolence of the strong with the cowardice of the weak. To be in a position to defend one's own interests and rights, and to have sufficient mastery of oneself and benevolence for true equals to justly stop oneself at the point in which one would commence invading the interests and positions of others is a characteristic of the strong. To the contrary, the lack of courage to defend oneself, renouncing every resistance, putting oneself at the generosity of the winner, even pushing the cowardly end and helping it and facilitating their victory is characteristic of the weak and degenerate man.
>
> (Pareto l974b, pp. 176–77)

Stable equilibrium is associated with sustained 'energy' and effort by the ruling elite to maintain their political authority. It requires that vibrant members of the dominant elite are replaced as they die. When elements degenerate by becoming tired or by losing their 'faith', a mechanism to eliminate them is necessary if social equilibrium is to be maintained in a stable manner. Just as importantly, a selection mechanism to assimilate new elements (i.e. new members) of the elite is required. Without effective political selection, the elite will lose the ability to exercise its authority, and social actions are likely to result in social change.

However, there is no presumption that stability of social equilibrium is enduring; otherwise, there would be no social change in the relations of power and authority. For reasons of analytical simplicity, Pareto considered unstable social equilibrium in the case of two elites: A—the elite in power, and B—the elite that aspires to power. There is also a third group, the Cs. These are the governed or 'the people', who lack the energy, character or intelligence required to be an element in a governing or non-governing elite.

> The Cs on their own are powerless, they are an army without leaders, they only acquire power when they are lead by A or B. Very often,

> almost always, the Bs put this idea in their heads, while the As go to sleep in a false security or despising the Cs. On the other hand the Bs can flatter the Cs best, precisely because, by not having power, their promises are longer term.… the Bs cannot conquer the As and take their position without the help of the Cs. When they have managed to occupy power, a new elite D will form which will play the same part relative to them that they played relative to the As, and so it continues.
> (Pareto 1974b, pp. 152–53)

If a governing elite wishes to remain in power, it constrains the power of other elites by demonstrating to the Cs that the alternative elites are incapable of governing, or that they cannot do it as well as the incumbent. Failure by the governing elite to assimilate new elements and to eliminate the 'degenerate' elements leads to decadence and takes two fundamental forms. The inability to defend one's interests, and the development of 'depraved tastes' (such as the searching for new and strange enjoyments). Both are associated with unstable equilibrium.

Decadence may be due to poor political selection, whereby an elite is unable to eliminate its degenerated elements and assimilate new elements that are truly the 'best'. More generally, it may simply be symptomatic of a loss of 'faith', the acquisition of an alternative elite's faith, or even the inability to distinguish between strength and force.[7] Pareto also noted that members of elites that have lost their 'faith' may make some effort to support the interests of alternative elites or the people, while still enjoying most of the material benefits of belonging to their group or class. This was particularly striking in respect of some advocates of socialism, as Pareto asks: "Is it not amusing to hear protests against 'capital' from people who live exclusively on the income of this 'capital'?" (Pareto 1974b, p. 179).

Pareto's principal uniformity associated with the 'substance of social evolution' is that there "exists an extremely important fact for the social physiology, and that is that aristocracies don't endure" (Pareto 1974b, p. 131). Therefore, the form that elites take can be unstable, and decadence of the governing elite and unstable social equilibrium are common features of social evolution. In addition, spoliation may be an ongoing reason for social equilibrium to become unstable. For example, the ruling elite may wish to extend spoliation of a particular kind, and "(h)istory teaches that more than once spoliation has ended by killing the goose that lays the golden eggs" (Pareto 1974b, p. 227). Alternatively, the non-governing elites, with the support of the despoiled, may bring about change by revolt or ballot.

The second significant general uniformity is that the power to acquire and effectively exercise authority (with associated patterns of spoliation) undulates in a rhythmic pattern through time. However, despite this, the period between points of social equilibrium is not subject to any particular uniformity.

> It is because social movements take an undulating form that it is difficult to predict, from the evidence of the past, the future direction of this movement…. Furthermore, when a movement is going to change direction, it does not usually start by diminishing in intensity, which would facilitate prediction, on the contrary, it often happens that the movement attains its maximum intensity on the very eve of a change in direction.
>
> (Pareto 1974b, p. 149)[8]

Therefore, the substantive uniformities associated with elites are limited, and the researcher who applies these uniformities must work within these limitations. Since there is no evident pattern to changes in the form of a social equilibrium and general laws of social evolution, Pareto's findings are of limited assistance to the social scientist interested in predicting the form or timing of political change. In "'La Scienza delle Finanze'", Buchanan demonstrates some appreciation of this. The characteristic feature of the ruling-class approach that he links to Pareto is "that decisions are made by limited groups of individuals, which the system of relations called the 'State' has placed in power, perhaps temporarily. Little influence is attributed to the actual form of the state or the actual process of choice" (Buchanan 1960, p. 37).

Under Buchanan's politics-as-exchange approach, political cycles are recognised, but not emphasised in the way Pareto does, and are not considered the main phenomenon to be explained by social science. Instead, it is taken as a consequence of capacity to reveal and express preference under the constitutional rules of political conduct, especially in relation to their share of the cost of community desires.

The politics-as-exchange and politics-as-power approaches are most similar when Paretian analysis concerns a stable form of social equilibrium-because in this circumstance the influence of sentiment/human motivation is likely to be constant. While the respective emphasis on substantive matters is very different (i.e. exchange subject to constitutional constraints versus social instability and irregular cyclical social evolution), Buchanan's and Pareto's essentially common atomistic base ensures that there is no necessary logical inconsistency to prevent the frameworks from being considered complements. The most noteworthy obstacle to reconciliation is Buchanan's subjective link between politics-as-exchange and constitutional rules—but this is an unnecessary intrusion of a normative matter into a positive framework.

6.7 Normative issues: rules, outcomes and social selection

In "The Constitution of Economic Policy", Buchanan identifies two fundamentally normative aspects of his work: the constitution of economic policy, and constitutional contractarianism. They are not concerned with the outcomes of the political process, but with the rules that establish the framework within which political choices are made.

The constitution of economic policy relates to the level of public support for the rules that govern the political process. The greater the support, the greater the level of efficiency claimed for the political process. Total support is portrayed as "the political analogue to freedom of exchange of particular goods in markets" (Buchanan 1987, p. 247).

Overlaying this is an additional normative criterion that requires an affirmative or negative response to the following question: could the constitutional rules have been agreed in a pre-constitutional period? Buchanan terms this test 'contractarianism', where a hypothetical preconstitutional agreement is made under Rawl's (1971) 'veil of ignorance', so that contractarian rules reflect individuals' perception of the general interest and the role of the state, and not their own economic interests. A negative response to the contractarian fairness test is portrayed as justification for economists committed to individualism to actively debate change to the constitution of rules. However, there is no suggestion that there is a 'justifiable' political role for economists to actively debate particular non-constitutional outcomes that result from a perfectly endorsed constitution.[9]

In contrast, the *Systèmes* does not focus on choice rules, but on realworld constraints, which are directly or indirectly related to selection issues or public policy outcomes. Social evolution includes the evolution of institutions as well as their rules, interpretation of rules, and the extent to which rules are complied with. The public choice focus on a hypothetical, precontractarian period ignores (or assumes constant) the very long-term constraints that social evolution imposes on policy-makers through the processes of political and social selection.

The principal sentiments to directly influence social selection are, according to Pareto, justice and compassion (Pareto 1974b, p. 541). The balance between these two is important in determining social selection and distribution of commodities in a society. Pareto did not use the term 'justice' in a broad sense. 'Just actions' are characterised as actions to defend oneself and one's property. Compassion, on the other hand, is portrayed as coming to the aid of others.

Pareto's study of social selection also complements his analysis of the economic requirements for efficient use of productive elements of society. It requires an acknowledgement of the existence of 'unsuited elements' in society, and that in practice all societies have addressed this matter in some way, largely through negative sanctions for criminal conduct. Otherwise, if "the actions of these elements are not contained within certain limits, society is annihilated" (Pareto 1974b, p. 541).

If the issue of selection is ignored, it is a simple matter to note problems in the real world (and also to propose solutions that will not have the desired intention because they do not reconcile with real-world actions). But Pareto charged that it is not enough to just identify social problems. It must also be demonstrated that alternative forms of selection are realistic and better than the existing process (Pareto 1974b, p. 543). Associated with this is the need to confront unsuited elements.

> The problem to solve is the following: First of all, are there means to diminish, reduce to a minimum the number of individuals born who are unsuited to the conditions of social life? Next, if one cannot diminish the number of these births, and the number of these individuals increases and becomes a danger to society, how are they to be eliminated, with a minimum of error in their selection and suffering that is inflicted on them, and without irritating humanitarian sentiments that are useful to develop?
> (Pareto 1974b, p. 554)

In the context of public policy, it is very important to recognise that Pareto did not view social selection as a 'natural' process. He regarded it as something that is highly imperfect and that could be modified by direct political action, and he identified three methods of controlling the danger of 'unsuited elements' (Pareto 1974b, p. 541). These elements can be "done away with", their harmful activities can be "obstructed", or their nature can be "modified". This can be applied either by direct or indirect means.

The direct application of the first method would be virtually impossible to implement as a deliberate general policy, not only because "the mechanism to achieve it is necessarily imperfect, from which frightening abuse could result, but also because similar provisions would irritate too much the sentiments of altruism and compassion, which must be developed for society to survive and prosper" (Pareto 1974b, p. 542).

However, Pareto's discussion of the normative elements of selection is too general to be of much practical use. He does not distinguish between the political and criminal acts of unsuited elements and the political acts of suitable elements—though he rectifies this in the *Trattato* (Pareto 1935, p. 1514). Even more fundamentally, he does not provide a means of establishing whether unsuited elements are unsuited 'relative' to the existing elite (which itself may be in an unstable equilibrium), or unsuited to social conduct under all possible current and alternative social elites.

Complementing the normative 'justice' issues associated with social selection, Pareto also examines normative 'compassion' issues under the topic of the distribution of wealth. As Pareto insisted on a balance between the forces of justice and compassion, public policy to alter distribution is indirectly related to (imperfect) social selection, through recognition of concrete economic processes and the constraints of historical factors. This is evident from the following discussion of inheritance:

> The distribution of wealth is achieved, at least in certain cases, by completely imperfect means…and this is especially the case for distribution that is realised by means of inheritance. In fact, it is very difficult to sustain that this is a means of awarding division of wealth to those who will best use it. Certain defences of inheritance are ridiculous.
> (Pareto 1974b, pp. 561–62)

Since social evolution suggests there are diverse means of distribution, Pareto rejects the notion that the means of distribution cannot be changed because they are "natural" or "the product of the law of evolution". The former is the result of metaphysical reasoning, and the latter "puts poorly observed facts with bad interpretations" (Pareto 1974b, pp. 562–63).

Pareto viewed the main issue of distribution requiring resolution to be the treatment of income from capital (Pareto 1974b, p. 569).[10] In this regard Pareto requires "reformers" who propose a new distribution system to meet six obligations. Three of these obligations illustrate the difference between Pareto and the public choice approach to normative issues,[11] namely that the proposed redistribution will

(i) increase the happiness of men (and not merely increase the happiness of the advocates for the new system);
(ii) enhance well-being, even when it causes production to diminish;
(iii) reflect the perceptions of justice and equity used to justify it.

The first two obligations relate to the fundamentals of timeless social utility theory. Taken in isolation, these principles can be considered in terms of conventionally defined Pareto optimality, where individuals' preference functions are subject to utility interdependence (i.e. where individuals' utility is sensitive to the well-being of others, as discussed in Chapter 7). However, when considered in the context of the positive foundations of the *Systèmes* (i.e. social evolution, elites, spoliation and selection), this normative reference to welfare can only be interpreted in the context of winners and losers. This suggests that Pareto had in mind a notion of collective social welfare that resorts to interpersonal comparisons of utility—which he subsequently generalised and developed further.[12] Nevertheless, in the *Systèmes,* Pareto offers only a hint of the numerous problems associated with measuring aggregate social utility, when he acknowledges that the well-being of the community cannot be considered as if society is a single individual.[13] Of course, this would be a proposition that public choice economists would fully endorse.

In contrast, Buchanan explained how to confine welfare considerations of public policy actions to the conventionally defined Pareto optimality criteria in his "The Relevance of Pareto Optimality" (Buchanan 1962). In this article Buchanan specifies his view that the criteria are not necessarily relevant to outcomes or results, but to "organisational rules or constraints that are expected to prevail over a sequence of results. Non-optimality in a single instance does not imply potential consensus on a change in the organisational rules" (Buchanan 1962, p. 353).

The third obligation requires some further clarification, as it applies in two distinct circumstances. The first circumstance relates to the justification of a new form of distribution through principles of justice and equity that are different to those currently used in society. The second circumstance relates to the justification of a new form of distribution, using principles of justice and

equity that are consistent with those currently used in society. In the first case, it must be demonstrated that the resulting change in the form of distribution will not cause society's views of these principles to change. In the second case, it must be demonstrated that the expected principles that inspire redistribution will be realised by the change, and will become collective norms.

In brief, the third obligation reflects the path-dependence of social interaction, with social utility becoming more uncertain when change in sentiments are considered. While this is raised in the context of government-sponsored redistribution, it also has analytical applications that are contrary to the positive foundations of normative public choice positions. Constitutional rules determined in a hypothetical pre-constitutional period under the veil of ignorance would necessarily reflect individuals' views of justice and compassion from a real, post-constitutional period (but with the weighting assigned to self-interest potentially reduced). A generally supported constitutional change may not continue to be supported once implemented, because the constitutional change itself may cause a change in perceptions of justice and compassion. With endogenous interactions over time, perceptions of justice and compassion may not remain unchanged, as Buchanan's constitutional rule-setting assumes. History suggests that such interactions are non-logical in a Paretian sense, and are therefore potentially unstable when considered over a substantial period of time.

6.8 Conclusion

By examining the general uniformities of political evolution in light of variable sentiment, the scope of the *Systèmes* is limited to the general portion of all political action that is common to all social systems. By implicitly assuming that human motivations other than economic interests are constant, public choice economists can analyse a much larger proportion of political acts. However, the relationships identified may not endure when sentiments shift or when social equilibrium changes.

When the analysis of the *Systèmes* is confined to stable social equilibrium, many of the differences between the two approaches are less significant. In such circumstances, the focus of the *Systèmes* is less directed to the substance of social evolution and the associated general laws, and more on the form that evolution has created. In this context, change in choice patterns due to sentiments and human motivation should be limited because they are generally constant, as are the elements of selection and power.

More generally, the positive bases of these two approaches are not essentially logically inconsistent. However, they mark a very different emphasis. Determinism is highly valued by public choice theory, and not as highly valued by Pareto (at least not in his sociology). Conversely, Pareto's search for the long-term general uniformities in recognition of variable sentiments is not highly valued in public choice theory. Nevertheless, the

positive frameworks of both approaches can be considered complementary, not contradictory (as further considered in Chapter 8).

The main similarities and differences between the positive aspects of the *Systèmes* and the public choice school are summarised in Table 6.1.

In regard to normative issues, however, the two approaches are very different and essentially irreconcilable. Buchanan's unique public choice focus on reform of rules is alien to Pareto's more conventional concern with specific outcomes, and their benefits for the social collective. This difference is in part due to Pareto's concern over path-dependence, as evident in the obligations that Pareto imposes on advocates in favour of altering income distribution, which is missing from the 'contractarian' approach to constitutional rules endorsed by Buchanan.

Table 6.1 Pareto's *Systèmes* compared to Buchanan's public choice

Element	Systèmes	*Public Choice*
Research methodology	Individualist (but accepts that some external criteria may be necessary to make interpersonal comparisons for normative purposes)	Unequivocally individualist
A role for economic interest in politics	Yes	Yes
Considers sentiment	Yes	No
Constant human motivation (other than economic interests)	No	Yes
Laws	General uniformities common to all social systems	Individual behaviour specific to highly defined institutional environment
The time period for substantive research	Open ended – focus on uniformities of social evolution	Open ended, but subject to the implicit assumption that human motivation is constant
Equilibrium	Explicit focus on the relationship between interests, sentiment and unstable and stable equilibrium	Focus on stable choice environments where individuals' utility from social norms is stable, but pursuit of interests may lead to cyclical political change
Characterisation of society	Conflict and selection	Institutional choice environments
Characterisation of politics	Power and authority	Exchange subject to rules

7 Rationality, Individualism and Public Policy[1]

7.1 Introduction

The proceedings of a 1986 conference on consumer sovereignty and public policy at the Australian National University were edited by Geoffrey Brennan and Cliff Walsh (1990), and published under the title *Rationality, Individualism and Public Policy.* By and large, the published proceedings consider the normative implications of the limits to consumer sovereignty when

- the benefit from some goods is 'irreducibly social' and cannot be analysed by focusing on the individual
- human behaviour is (apparently) irrational
- preferences are manipulated through the provision of 'merit' goods
- preferences are differentiated by type (e.g. revealed or true preferences) and by institution in which they are expressed (e.g. the market or the ballot box)

The book includes a wide variety of papers. The conference organisers invited participants from varied academic backgrounds, primarily in economics, but also in the fields of politics and philosophy. This is an implicit recognition of the need for a multidisciplinary approach to public policy once the logical nature of individuals' behaviour is called into question.

An unfortunate consequence of the multidisciplinary flavour of the conference was the very narrow analytical base from which a consensus policy framework could be developed. This chapter contends that Pareto's multidisciplinary framework facilitates examination of many of the above issues in a more integrated manner, and that, even today, it is a relevant starting point for an examination of issues such as those addressed at the conference.

Despite the fact that Pareto's distinction between logical and non-logical action provides a framework for examining the policy relevance of consumer sovereignty, there is no mention in the conference papers of Pareto's analysis of non-logical conduct. Ironically, the only reference to Pareto concerns

rational actions of economic agents (i.e. achieving Pareto optimality when rational consumers are sovereign).

The objective of this chapter is to clarify and analyse the main issues raised in *Rationality, Individualism, and Public Policy,* using Pareto's framework for the study of logical and non-logical actions outlined in the *Trattato.* It is not intended as a book review, but as a means of bringing together aspects of the preceding chapters of this study, and considering public policy issues from the contemporary perspective provided in *Rationality, Individualism, and Public Policy.* The notions of 'merit goods' and 'welfare', in particular, are explored in some detail.

Section 7.2 examines the critique of methodological individualism—criticised on the grounds that some goods are irreducibly social—and demonstrates that the critique does not apply to Pareto's system of mutual social and economic interdependence. Section 7.3 examines rational and irrational actions in the context of the public choice distinction between 'in-period' behaviour and 'constitutional period' behaviour, as well as irrationality as one basis for merit good provision. Section 7.4 examines utility interdependence and the merit good argument in terms of preference correction of non-logical (but still rational) actions. Section 7.5 evaluates the implications for theory and policy of individuals revealing multiple and inconsistent preferences in different institutions. Some conclusions are given in Section 7.6.

7.2 Irreducibly social goods

Attack on methodological individualism

In the paper titled *Irreducibly Social Goods,* Taylor (1990) attacks welfare economics, or welfarism, and rejects 'methodological individualism' on the grounds that treatment of the collective as if it were atomistic is not valid. His related objective is to criticise 'subjectivism' in economics when it finds expression through the concept of 'utility'.

Taylor's primary hypothesis is that benefits from all goods are not merely the sum of benefits enjoyed by individuals, even after public goods have been accounted for. In support of this view, he notes that some goods exert a significant influence on the perceptions of the members of a collective. Language itself is portrayed as the foundation on which his notion of irreducibly social goods is developed. This is because factors such as roles, customs, rules and laws operate through thoughts specific to a given linguistic background that reflects concepts of social and cultural significance.

> [A] language is created and sustained in the continuing interchanges that take place in a certain linguistic community. This linguistic community is its locus; and *that* is what ultimately rules out methodological individualism.
>
> (Taylor 1990, pp. 51–52)

Taylor suggests that 'plain events' do not require a linguistic background to determine their meaning, but 'meaning events' do because they reflect society's culture, which is inextricably linked to language. He asserts that atomism is not only deficient in the study of 'meaning events', but also in the study of 'plain events', because even the latter have to be justified against a background of understanding how society works.

To illustrate these concepts, consider an individual's decision to purchase a copy of the Koran. The purchase of a good is a 'plain event', but this particular purchase must also be considered in the context of related 'meaning events' (i.e. reflecting the cultural or legal dominance of Islam in the community of which the individual is a member).

Welfarism endorses atomism and accepts individuals' judgements without differentiating between plain and meaning events. From this Taylor deduces that the value of meaning events is diminished in welfarism. Furthermore, welfarism has no role for 'moral arguments' that are at odds with individuals' assessment of utility and that provide the basis for a pro-altruistic philanthropy.

Reducing the irreducible

Interdependent atomism that utilises Pareto's distinction between ophelimity and utility does not suffer from the shortcomings that Taylor suggests apply to methodological individualism and welfarism.

In September 1904, Pareto clarified his views on his preferred unit of social analysis in "L'Individuale ed il Sociale":

> The term *individual* is precise; it serves to indicate a living being considered separately. The term *society* is a little vague: it generally designates an aggregation of individuals considered together…often we intend the collection of men forming a given political state, without saying so explicitly. Then one must take account of the extension of time. It is necessary to explain whether we intend to speak of the collection of men existing at a given moment, or of a collection of men that existed, that exist, that will exist in a determinate time interval.
>
> The adjectives *individual* and *social* are vaguer than their nouns. For the man who lives in society, we can say, from a certain point of view, that his characteristics are individual. Considering the same phenomenon from another point of view, one can say that all the characteristics of men are social.
>
> (Pareto 1980e, pp. 268–69)

However, in the same article, Pareto indicates that any suggestion that society is not simply a juxtaposition of individuals, because individuals acquire new characteristics by living in society, is simply "banal" (Pareto 1980e, p. 269). 'Man in society' is all that can be observed. The key element for Pareto's

philosophy of science here is what can be 'observed'. Class or group relationships within social systems are verifiable by observation, whereas the interdependencies between individuals that shape these relationships are much more difficult to discern. They are numerous and occur over generations. Consequently, and as shown in Chapter 6, Pareto focused on elites and the heterogeneity of individuals in the collective. The inductive focus is simply on what can be observed. For the same reason, the theories of residues and derivations reflect categories for various levels of social aggregation.

Talcott Parsons is no doubt correct when he points out that the system associated with residues and derivations "did not carry the explicit treatment of non-logical action beyond the isolated unit act to consider the structure of total systems of action" (Parsons 1968, p. 268). As a result, Pareto's general sociology does not fully integrate analysis using methodological individualism because there is no step linking the unit act with system outcomes. However, this does not mean that benefits associated with social equilibrium are irreducibly social. When the same general uniformities are revealed irrespective of the form of society under consideration, the only common element that remains is the individual. For example, action by members of a collective to preserve the particular institutional arrangements that define a social aggregate, with its associated social norms, can be confirmed in all societies. As actions to preserve are not a phenomenon that is confined to a particular form of society, they must represent an attribute of the human psyche. That is, they must be socially reducible, though given the relative state of knowledge, the analytical instruments to reduce the benefits to individuals may not have been developed. Similarly, re-ordering social arrangements is not limited to societies of any particular social form or structure. Individuals exhibit residues associated with preservation and innovation in varying proportions, and change in dominant cultural values depends on the interaction between these (and other) factors.

Taylor's case for classing certain goods, like language and culture, as purely social and irreducible, does not fully acknowledge interaction effects on social utility between heterogeneous individuals. His critique of atomistic welfare economics, in terms of its valuation of cultural and ethical values as if they were simply pleasure-generating tastes, is valid. However, this does not justify treating some goods as irreducibly social, because he has not discredited atomism *per se.*

Consider the case of language, which is presented by Taylor as an extremely important irreducibly social good. Pareto classed language as an organism developed in conformity to its own laws by non-logical processes (Pareto 1935, pp. 513–14). Generally it is developed by the population at large in response to spontaneous forces (Pareto 1935, p. 1128). A vast number of words within a language "arouse indefinite sentiments but otherwise correspond to nothing real. There is nothing objective corresponding to the

terms…'good' and 'bad', 'beautiful' and 'ugly', 'honest' and 'dishonest', 'just' and 'unjust', 'moral' and 'immoral'" (Pareto 1935, p. 994). However, these vague words, and language development in a particular country, are related to the development of community values.

> All individuals who speak a given language express almost identical sentiments in terms on the whole similar. In the same way individuals who live in a given environment and are affected by its many influences are inclined to manifest almost identical sentiments in very similar forms. The similarity extends to the derivations, or manifestations of different residues.
> (Pareto 1935, p. 1404)

The important point is the fact that linguistic and cultural concepts are not static; rather, they evolve. This is a general uniformity that cuts across all societies. The common element is interaction between the members of society, and just like social evolution, linguistic and cultural concepts will both continue to evolve as a result of interaction between people.

At a very broad level, events related to Pareto's study of ophelimity and economic interests could be considered the atomistic equivalent of Taylor's 'plain events', because ophelimity deals with desires considered independent of cultural constraints. Similarly, phenomena related to utility, such as residues, derivations and social heterogeneity, may be viewed as the reducible social equivalent to Taylor's 'meaning events'. Taylor's attempt to classify meaning events as irreducibly social appears to reflect a preference for conservation of culture, and as such is a derivation which places great weight on Pareto's second residue—i.e. the preservation of existing social aggregates.

7.3 Rational and irrational behaviour

Rational behaviour

In his *The Normative Status of Consumer Sovereignty,* Hamlin (1990) utilises methodological individualism to demonstrate that apparently irrational actions may in fact be rational and in conformity with consumer sovereignty. To do this he differentiates between decision-making at the 'critical' (or 'constitutional') level and decision-making at the 'in-period' (or 'practical') level. In brief, critical level decisions relate to actions that influence rulemaking, and in-period level actions are of a non-rule-making kind, but which have been made in light of constitutional actions. Constitutional actions may be undertaken privately (e.g. a contractual arrangement governing future actions) or publicly. This is consistent with Buchanan's normative analysis outlined in Chapter 6.

The conventional specification of consumer sovereignty concerns social outcomes "valued by reference to preferences, but this valuation is independent of the process which brings the outcome into existence" (Hamlin

1990, p. 3). That is, it is considered at the 'in-period' level. Consumer sovereignty considered at the 'critical' level concerns the establishment of rules which set the parameters of human behaviour that accord with individuals' underlying preferences. For example, an agreement or law to prohibit specific actions because they may modify individuals' preferences.

Consumer sovereignty at the critical level recognises that market failure can be internal to the individual. The problems of internal market failure are analogous to external market failures, implying that market failure can be due to both externalities and internalities. In both instances actions at the constitutional stage may be designed to correct these failures.

The fundamental problem with the distinction between 'in-period' and 'critical' level preferences is that the distinction is arbitrary and based on a biased perception of rules and the rule-making process. People choose to ignore or accept rules depending on their assessment of the role of rules and laws generally, the merit of the particular rule in question, and the obstacles which prevent rules being violated (such as sanctions). A rule is generally accepted or rejected by an individual after it has been developed and/or evaluated with respect to tastes and sentiments. Each time that a non-rule-making act is undertaken, it is an act of confirmation or rejection of that rule. Consequently, most in-period behaviour also has a rule-making element.

To the extent that a collective is dominated by individuals with residues associated with the preservation of existing social arrangements, established rules will tend to be respected. The converse will apply when a collective is dominated by individuals with residues for reorganising society through innovation. Since social equilibrium oscillates, the ratio of conservative to innovative individuals in society may not remain constant over time, and the life expectancy of a rule will ultimately depend on interaction between the elements of social and economic equilibrium.

Hamlin's contention that consumer sovereignty is appropriately considered at the critical level relies on conservative sentiment (i.e. acceptance of laws, or more specifically constitutionally determined rules of behaviour). The importance of sentiment in Hamlin's defence of consumer sovereignty is clearly evident, even from his examination of some of the traditional critiques of consumer sovereignty, particularly those related to endogeneity of preferences and undesirable preferences.

Hamlin identifies two distinct types of endogenous preferences: first, intended preference manipulation as a direct result of other people's behaviour; and second, unintended preference changes that result from social interaction. For individuals themselves, intended preference manipulation may even be intended to constrain one's own behaviour.

> At the critical level I may wish to reform my preferences and so choose social arrangements which will force me to act in ways that bring about

> the desired preference change. This may be more effective…than any available strategy of character planning which operates totally internally and in the face of my present preferences.
>
> (Hamlin 1990, p. 8)

However, it is not necessary to treat voluntarily private arrangements that specify particular short-and long-term preference trade-offs as a critical versus in-period issue. This is just an example of consumers assessing the intertemporal costs and benefits of their choices. This issue is more contentious when an individual attempts to manipulate others' preferences, either privately or through public policy. Hamlin believes that such intended manipulation is analogous to the use of coercive physical force to achieve an outcome.

> I would suggest that our intuitive rejection of the individual's 'right to manipulate' is founded on the same grounds as our rejection of the 'right to coerce'. This suggests that in-period consumer sovereignty must be restricted in such a way as to rule out such acts of intentional manipulation in the same way that it may be restricted to rule out acts of coercion.
>
> (Hamlin 1990, pp. 7–8)

However, contrary to Hamlin's suggestion, coercion is a recognised right in most societies in given circumstances. Police may threaten or apply physically coercive techniques to prevent criminal acts or arrest individuals. Negative sanctions against anti-social behaviour such as corporal punishment are also coercive, as are many instances of military discipline. Similarly, there are many instances when intended preference manipulation is regarded as legitimate by the community at large. For example, criminal rehabilitation programmes. Governments generally set the parameters that determine the circumstances when coercion is regarded as unacceptable, and the type and level of coercive force that is regarded as warranted.

Hamlin is simply expressing a belief that coercion and intended manipulation of other people's preferences are absolute bads. This is contrary to the practice in most societies, where coercion is regarded as a relative bad, but is tolerated if it generates perceived public benefits such as greater compliance with the law.

The overt dependence on sentiment in Hamlin's analysis is evident when he makes his analysis conditional on "the laundering of preferences if they conflict with the underlying values of individualism" (Hamlin 1990, p. 14). The fact is that some members of society have little or no regard for others. By mixing analysis with laundered preferences, Hamlin has devised a *derivation,* where the 'analytical' division between the 'critical' and 'in-period' levels has more to do with rationalisation of a particular approach to policy, than developing the positive foundations of policy.

Irrational behaviour

A major goal of *Rationality, Individualism and Public Policy* was to consider the development of the merit good concept since it was initially proposed by Richard Musgrave in the late 1950s. Since the initial rationale for over-riding individual preferences by providing merit goods was the impact of imperfect information and irrationality (Head 1990, pp. 224–25), it is appropriate to consider some of the less contentious aspects of merit goods in this section.[2]

Merit goods are rationalised on the basis that when people are irrational or information is imperfect, consumer sovereignty may not be an appropriate goal. In such circumstances, merit goods provision would be sub-optimal for a given set of preferences, but may alter (or correct) preferences and improve welfare. Brennan (1990) and Walsh (1990) discuss the rationale for merit goods primarily in terms of individual irrationality, when revealed preferences are not an indication of a person's true preferences, or when individuals do not act to maximise benefits in accordance with their preferences.

One hundred years ago in the *Cours,* Pareto addressed the same issue, but in the context of children and intellectually handicapped people. Basically, he suggested that there may be two instances where individuals' preferences may be overridden. First, when individuals' tastes are inconsistent with wellbeing. Second, when the direct sacrifice to an individual's well-being from overriding their preferences is more than offset by the indirect benefits that the same individual will receive from the general social changes that this action has brought about.

> When the use of coercive force is not limited exclusively to the advantage of the person or persons deploying it, their exercise in securing advantage is called *tutelage*. It may be to the direct advantage of the dependent person, or to his indirect advantage if the exercise of tutelage is of direct advantage to the social aggregate of which he is a part. The first type can be termed *private tutelage,* the second *public tutelage*. Private tutelage originates from the difference between ophelimity and direct utility for the dependent; public tutelage mainly originates from the difference between direct utility for the individual and his indirect utility consequent upon direct utility for the aggregate. In cases where tutelage brings no utility, direct or indirect, for the individual, it should not be confused with tutelage in the proper sense.
>
> (Pareto 1971a, p. 695)[3]

However, as Pareto warns, while tutelage is necessary, it can result in grave abuses (Pareto 1971a, pp. 695–96). Similarly, justifying the public provision of certain services as merit goods that correct irrational preferences and/or imperfect information may be subject to abuse. It may also be simply

misguided and lead to what Walsh calls the "slippery slope of paternalism" (Walsh 1990, p. 149).

7.4 Preference manipulation and non-logical actions

Non-logical preferences

In order to examine preference 'correction' and merit goods, Head (1990, pp. 219–20) modified welfare economics by utilising the Pigovian distinction between individuals' (ex ante) desires and (ex post) satisfactions, and added an additional series of preferences based on ethics and morals. Three alternative interpretations of the social welfare are then derived:

- welfare as a function of standard (ex ante) utility indicators of revealed preferences, i.e. I preferences
- welfare as a function of (ex post) indicators of preferences based on tastes, i.e. P preferences
- welfare as a function of ethics or welfare-relevant preferences which are the ultimate or highest-order preferences, i.e. W preferences

W preferences are deemed to be higher-order preferences than P and I preferences, and P preferences are deemed to be of a higher order than I preferences.

The distinction between I and P preferences can be used to account for weakness of will and addiction issues (Head 1990, p. 223). It is relatively uncontroversial to correct I preferences to represent P preferences, and this does not violate consumer sovereignty. It is a recognition that people often do not have sufficient information for I and P preferences to be the same. However, as established in Chapter 3, the actions of Pareto's *homo œconomicus* are logical, which by definition means that there is no divergence between I and P preferences, both of which could correspond to Pareto's indices of (stable and conserved) ophelimity.

W preferences are equivalent to preferences under Pareto's definition of utility (though in Pareto's analytical system there would be no place for preference ordering of the following type: 'higher-order', 'lower-order' or 'ethically relevant' preferences). Head's division of preference types is similar to that proposed by John Harsanyi (1955), where an individual's utility function is distinguished from an individual's social welfare function. Under Harsanyi's approach, the individual's utility function is based on the individual's actual 'subjective preferences' and the individual's social welfare function is based on 'ethical preferences' derived from 'impersonal' social considerations alone.

When Head's P preferences conflict with W preferences, or when Harsanyi's subjective preferences are in conflict with his ethical preference, "lower order market preferences may require correction in light of higher order

moral values" (Head 1990, p. 226). For example, P preferences for prostitution, abortion or discrimination may, if acted on, maximise 'ophelimity' but could diminish 'utility' based on W preferences.

The case for merit goods is related to W preferences overriding lower-order preferences, and also 'utility interdependence' and preference endogeneity. As Walsh notes, a

> feature of merit good policies that is sometimes raised is the fact that their implementation cannot be associated with 'potential Pareto improvements' as that term is usually understood.
>
> (Walsh 1990, p. 168)

Although Walsh's reference to the usual understanding of Pareto optimality is in reference to welfare improvements after corrections for externalities, this also begs the question—does the usual understanding by economists of Pareto optimality accord with Pareto's work in relation to W preferences or the individual's social welfare? The answer is unequivocally no. Pareto's treatment of this issue is rooted in his study of sociological maximisation.

Pareto's economic and sociological maxima

Cirillo (1979, p. 58) has suggested that Pareto may have developed his economic maximising criteria to define the limits of economics as a science. However, it is a limit that welfare and policy economists have chosen to disregard by developing the concept well beyond matters of 'tastes' and incorporating ethics and morals.

Pareto posed two sets of welfare criteria for social groups, one for economics and one for sociology. The welfare criterion for economics is called 'the maximum of ophelimity *for* a community' by Pareto. Sociology has two criteria, 'the maximum of utility *for* a community', and 'the maximum of utility *of* a community'.

The maximum of ophelimity *for* a community (i.e. maximum of collective economic welfare, as reviewed in Chapter 5) is undertaken "without resort to other considerations foreign to economics—to decide on the grounds of ethics, social utility or something else" (Pareto 1935, p. 1467). Since ethics are explicitly excluded, it is not legitimate to criticise this criterion on the grounds that it does not measure benefits or costs from employing public policy to alter the distribution of income. This is beyond the scope of ophelimity and Pareto's economics (except in the context of type III economic phenomena, where redistribution is independently considered by the Minister for Justice). To address this issue fully, one must turn to Pareto's maximising criteria in sociology, though they are somewhat more controversial.

The maximum of utility *for* a community in sociology refers to the maximum of each individual's utility subject to the constraint that no-one is made worse off. This explicitly recognises utility interdependence (i.e. where an individual's utility is sensitive to the well-being of others). The second sociological criterion, 'the maximum of utility *of* a community', abandons the requirement that everyone's utility improves as a result of an action.

Instead, it reflects the principle that the community as an entity is better off, with some individuals gaining and others losing.[4]

The fundamental difference between economic and sociological optimality in Pareto's analysis is that only the former is totally individualistic. The latter concerns the collective and requires a means of combining individuals' heterogeneous utilities into a single homogeneous form.

However, this cannot be achieved objectively (at least, not unless very restrictive conditions are assumed). Pareto's solution to this problem is to incorporate the government's subjective estimates of social utility to develop what Tarascio (1993, p. 52) calls the 'political welfare function'.

The first step in considering sociological optimalities involves each individual establishing their social utility by weighting their preferences for their own consumption of particular goods or services, as well as establishing weights for their estimates of the welfare of other individuals. Pareto's 1913 *Il Massimo di Utilità per una Collectività in Sociologia* (Pareto 1980k) focuses on the utility of others, implying a focus on redistribution in cash (or the numeraire welfare good). This is also evident from the *Trattato:*

> The admirer of the 'superman' will assign a coefficient of approximately zero to the utility of the lower classes, and get a point of equilibrium very close to the point where large inequalities prevail. The lover of equality will assign a high coefficient to the utility of the lower classes and get a point of equilibrium very close to the egalitarian condition. There is no criterion save sentiment for choosing between the one and the other.
>
> (Pareto 1935, p. 1472)

Pareto also discusses the relationship between welfare and robbery and imprisonment, bringing his work conceptually nearer the notion of particular commodity interdependence (i.e. redistribution in kind). The 'particular' commodity here is the set of services related to law and order.

Regardless of whether utility interdependence is general or relates to particular commodities, the weighting of preferences associated with the first step of Pareto's sociological approach to collective maximisation is undertaken by each individual assigning welfare coefficients for all members of society.

The second step adds an additional series of coefficients to weight each individual's contribution to social welfare. This is to facilitate the aggregation of individual preferences to determine social utility on a homogeneous basis.

However, these coefficients do not reflect objective weights because one cannot make objective interpersonal comparisons of utility. They reflect a sentiment that endorses "politically determined averages of corresponding coefficients that individuals themselves might deem appropriate" (Bergson 1983, p. 43). Having specified the political welfare function, policy can be pursued to either maximise utility *for,* or *of,* the community.

Of course, Pareto's sociological maxima concern non-logical conduct where an individual's subjective intent and objective end display pathdependence. The politically determined coefficients in Pareto's political welfare system are necessary in that they impose stability on a potentially unstable relationship between utility and public policy. This is only plausible when the government's authority to govern is secure, i.e. where the social equilibrium is stable because the balance of political power is stable, allowing public policy to be considered in relation to sociological welfare rather than the maintenance of political authority.

Pareto's sociological approach is also only consistent with conventional welfare economics to the extent of the analysis of ophelimity maximisation, and the first step employed to determine individuals' assessment of their social utility. The second step in Pareto sociological maximisation-involving interpersonal comparison of utility and utilisation of interpersonal comparisons to develop policy which politically imposes (a probably transitory) stability in the utility field—is notable by its absence.

An important possible exception within the economics discipline is John Harsanyi's attempt to facilitate interpersonal comparisons for the purpose of welfare comparisons in "Cardinal Welfare, Individualistic Ethics, and Interpersonal Comparisons of Utility" (Harsanyi 1955). Like Pareto, he represents the social welfare function for a collective as the sum of its individuals' homogeneous measures of utility[5] that are also based on broader preferences than ophelimity (i.e. 'impersonal' ethical preferences associated with the individual's social welfare function).[6] However, unlike Pareto, Harsanyi does not use the political process to determine cardinal measures of utility. Instead, he identifies the necessary scientific postulates for utility based on ethical preferences as a cardinal measure. This is the basis of an irreconcilable conflict between the two approaches. Harsanyi's approach is predicated on the postulate that ethical preferences reflect 'rational' behaviour, in that behaviour consistently conforms to postulates that do not allow for variation between expected and realised utility. In contrast, Pareto's approach centres on non-logical conduct, where the subjective intent of an act (or 'ethical' intent if one uses Harsanyi's classification of 'impersonal' preferences) and the direct objective end are poorly related. In this circumstance, the political process plays an essential role in determining and stabilising sociological welfare; whereas for Harsanyi, welfare is independent of the political process.

Pareto's analysis of the political process also facilitates examination of issues associated with merit goods. In *Rationality, Individualism and Public Policy,* utility interdependence is discussed as a possible basis for merit good provision,

but without reference to interpersonal comparisons of utility-the variety utilised by Pareto or Harsanyi. For example, the pioneering research by Hochman and Rogers (1969) and Olson (1969) demonstrated that explicit recognition of utility interdependence may require in-cash and/or in-kind redistribution that is Pareto optimal in the conventional sense, and without resort to interpersonal comparison of utilities. In the light of this, most authors accepted that in-kind redistribution can be rationalised[7] in terms of Pareto optimality without necessarily being justified in terms of preference manipulation. So it was not considered a prime reason for merit good provision.

As a consequence, when conduct is recognised as non-logical, a purely economic analysis of merit goods becomes vague.

> [I]ndividual choice is more complex than assumed in the conventional model; because individuals recognise social constraints on their own preferences; because giving takes paternalistic form; or because concepts of distributive justice relate to the availability of particular goods rather than to income or wealth at large. These situations share a departure from the conventional premise of consumer choice, but beyond this they are too divergent to yield a unique definition of the merit good term.
>
> (Musgrave 1990, p. 210)

However, by adopting Pareto's political welfare function, there is a basis for considering political actions to manipulate individuals' preferences. When an individual's utility maximising behaviour differs from what the government judges to be best for the community, there are two coercive means by which the government can attempt to alter the individuals' actions, namely force and consent. This is evident from the following comments by Tarascio which relate to an example devised by Pareto (1935, p. 1473):

> The individual may be forced to move [from q] to *t,* with the *direct* consequence that his utility declines. It may be the case that he later experiences an *indirect* gain in utility at *t*.... This case implies a transformation in the individual's subjective welfare function. Or the Government may wish to induce the individual to move from *q* to *t* voluntarily. This is where 'derivations' enter the scene in Paretian utility theory.... In order to induce the individual to make the movement, it may be necessary to offer a promise of a gain, or even a fantastic gain, in utility. In short, the function of the derivation is to blend the individual's social preferences with those deriving from social utility.
>
> (Tarascio 1993, p. 53)

Head (1990, pp. 233–36) suggests that the main rational justifications for merit goods are utility interdependence and endogenous preferences manifest as 'community values'. However, just as the political welfare function enables utility interdependence

to be considered, so too does Pareto's sociological framework for the consideration of path-dependent relationships allow for the evolution of 'community values' to be considered, and indeed integrated with the study of social equilibrium.

7.5 Preference differentiation by type and institution

A different approach is taken by Brennan (1990) in his *Irrational Action, Individual Sovereignty and The Political Process* to the issues of ethics, values and merit goods. He argues that a case can be made for publicly provided merit goods when the cost of supplying merit goods exceeds the cost which voters' estimate that they will contribute as a *direct* result of their voting decisions.

Using the public choice convention, Brennan suggests that "the institutional context in which preferences are revealed makes a difference to what is revealed" (Brennan 1990, p. 104).

In both the market and the political process, choice involves an "instrumental return" derived from achieving a desired outcome, and an "intrinsic return" derived from "expressing a preference" (Brennan 1990, pp. 106–07). However, the cost to the individual of expressing preferences in the market is greater than in the political process.

By deduction, Brennan suggests that an individual will only reveal the same preferences in the market and the political process when the probability that an individual's vote will be decisive (i.e. determine the outcome of an election because all other votes are tied) is equal to one.[8] If one accepts the hypothesis that expression of values is responsive to relative price, then "values are more likely to be expressed accurately when the cost of doing so is low" (Brennan 1990, p. 114).

Since the probability of an individual's vote being decisive is extremely low, preferences revealed through the act of voting will have little effect on the cost of public policy met by the voter. From this Brennan deduces that individuals will be more likely to reflect their values in the voting process than in preferences revealed in the market. If one also accepts that values require a reflective environment, and market activity is not conducive to moral conduct, "it may be that expressive preferences revealed in voting are a truer reflection of the agent's values than the 'interests' that the agent reveals in action" (Brennan 1990, p. 116). This may be a basis for justifying merit good choices being made through the political process.

The obvious difficulty with Brennan's model is that the agent's values are not revealed, so it is not possible to determine whether some revealed preferences are a truer reflection of values than others. It is an entirely subjective exercise to determine whether market or voter preferences are closer to individual's values, or even what true preferences are, and how they can be derived from preference revelation which varies between institutional settings.

Moreover, the meaning of 'preferences' revealed at the polling booth is unclear. Apart from the fact that ballots are usually secret (Pincus 1990, p. 134), political candidates have campaign platforms covering a full range of

public programmes, strategic alliances and often hidden agendas. Derivations abound at election time. Voters select a candidate by placing a series of numbers next to a series of names, or by other similar methods, after interpreting the derivations (discounting some and accentuating others in non-systematic ways), and taking other non-policy related factors into consideration. What this actually reveals about utility beyond a general preference for continuity or change is unclear.

Pareto regarded the form of government and the means of its selection as a secondary issue relative to the general uniformities evident in various forms of government. Using Brennan's term, Pareto's focus was on the instrumental return from the political process. He did so by emphasising the balance of *consent* and *force* employed in political systems, including democracies, to realise these returns. Focusing on intrinsic (and instrumental) returns without considering the balance of force and consent in political systems, is analogous to examining an economic market without regard for the regulation of that market by government.

In partial contrast to Brennan, Hamlin (1990) suggests that individuals actually incorporate several preferences at one time, with each set of preferences reflecting a particular concept. Consequently, for *homo œconomicus,* choice is decisive and the full cost of the choice is met by the choice maker. Preferences revealed by *homo sympatheticus* are conversely not decisive, and the cost of expressing these preferences in a political forum is slight. This "endogenous switching of an issue from one context to another (from the market to the forum and vice-versa…) will bring different preferences to bear and so bring different outcomes into effect" (Hamlin 1990, p. 16).

The Paretian approach accords more closely with Hamlin's multi-preference approach than with Brennan's approach. To Pareto, real man is not any of the abstractions referred to as *homo œconomicus, homo ethicus* or *homo religiosus,* nor *residues* and *derivations,* but the interactive sum of these abstractions plus the irregularities associated with 'concrete' phenomena which theory cannot account for.

Consequently, there is no logical inconsistency when preference orderings of *homo œconomicus* are contradictory to preference orderings related to *residues,* etc,—only interferences between different disciplines of the social sciences.

7.6 Conclusion

If economics is to be used to evaluate or propose policies that require critical evaluation of revealed preferences, it cannot do so with models that assume that preferences are given and stable, or when the rationality of the actor is defined solely in relation to the means employed to an end. This effectively defines the problems away, as is generally recognised in *Rationality, Individualism and Public Policy.*

However, one of the most distinctive features of *Rationality, Individualism and Public Policy* is the role played by sentimental and unclear terminology. For example, the term 'merit good' could have been devised by a marketing agency or a political lobby group. It is a double positive, a good good. Other equally sentimental concepts are 'true values' and 'truer values'.

By returning to the works of Pareto for inspiration, we find a rich theoretical basis within which preference manipulation can be analysed without resort to vague concepts derived from sentiment. It also redresses many of the problems identified in the critique of welfare economics, but without abandoning its core foundations. While consumer sovereignty may be a policy goal, realisation of the goal in all circumstances would not be an ideal outcome. Given the heterogeneous nature of individuals within society, and the importance of utility interdependence, maximisation of utility *of* the community will not always correspond with conventionally defined Pareto-optimal policy.

However, it must be cautioned that a general understanding of public policy must be set in the context of the broader government processes. In the Paretian context, this means that the largely inductive elements of general sociology (i.e. the less stable and less deterministic elements) also need to be considered in their political contexts before more delicate treatment of public policy issues can be undertaken. Chapter 8 attempts to do this with the aid of Pareto's mechanical analogy and the technique of successive approximations.

8 Government and public policy

8.1 Introduction

The primary objective of this chapter is to utilise Pareto's rapport between pure economics and general sociology to present a framework, based on a synthesis by successive approximations, for the study of government and public policy. This work is a largely original proposal for a Paretian framework for the investigation of government and public policy. It is consistent with Pareto's methodology and his mechanical analogy, but is not a review of the development of Pareto's analysis of politics. The secondary objective is to consider the practical limits of the sociological concept of utility for such analysis, and the consequent limits of a positive approach to government and policy. The combination of these two objectives provides a perspective that, by and large, clarifies the relationship between the nonideological aspects, the anti-ideological aspects and the normative aspects of applying Pareto's mechanical analogy to the analysis of politics.

The primary objective is addressed by building on Warren Samuels' contribution to the subject in *Pareto on Policy* (Samuels 1974). However, there are some important differences in emphasis between Samuels' study and the present one. Samuels bases his study almost entirely on Pareto's *Trattato,* without regard for the rapport between Pareto's economics and sociology. In this chapter that rapport is central, as general sociology and pure economics are synthetically united through Pareto's notion of successive approximations. Samuels' study is also oriented towards the development of a "positive theory of economic policy", whereas the secondary objective of this chapter is more concerned with establishing the limits of a positive Paretian approach to government and policy.

For analytical reasons, the two general categories of political action outlined in Chapter 1 are initially subject to examination in isolation. The first category relates to the process of 'government', which is used here to refer to political decision-making and action undertaken with regard for the maintenance of, or acquisition of, political authority. The second category concerns 'public policy', which is used to refer to political decision-making and action taken without regard for the maintenance or acquisition of political authority. When political action is partially motivated by concerns about the maintenance of political authority, and partially motivated by normative policy goals

developed independently of concerns about maintaining or acquiring political authority, it is necessary to consider such action from the perspective of the two analytical categories. That is, from the perspectives of 'government' and 'public policy'.

Section 8.2 commences with a brief overview of Samuels' study, as this constitutes the point of departure for the analysis in this chapter. It notes Samuels' contention that *the freedom* and *control* dimension of the political process and the *continuity* and *change* dimension are correlated under Pareto's system. It also considers the fundamental features of Pareto's discussion of the balance of power and his analogies of humankind (speculators, rentiers, lions and foxes). The first level of approximation is considered in Section 8.3. The process of government is analysed, leading to a distinction between 'substantial' aspects of the process of government, which are associated with the extent of conformity or non-conformity prevailing in the collective, and the social 'form' of the collective. The relevance of utility to changes in the degree of conformity is also discussed, in order to clarify the limits of positive analysis of the collective by distinguishing the non-ideological, anti-ideological and normative elements of Pareto's theoretical approach to government. The next level of approximation is considered in Section 8.4. It concerns the elements of the public policy process in isolation from issues of power which largely rely on deductive theory. Two policy types are also identified for varying levels of change (i.e. global and local). The conclusion is contained in Section 8.5. It suggests that a synthetic analysis of successive approximations provides an effective framework for a critical evaluation of the political process.

8.2 Contextual information

Introduction to Samuels on Pareto

The most notable English language investigation by an economist into Pareto's contribution to a positive groundwork for the study of political processes is Warren Samuels' *Pareto on Policy* (Samuels 1974).[1] The study is specifically oriented towards matters associated with economic policy (Samuels 1974, pp. xi, 3–7, 183–207). However, the breadth of Pareto's approach to social equilibrium inevitably resulted in Samuels considering the positive foundations of a 'general' political framework (including economic policy).

Given the distinction between government and public policy processes adopted in this chapter, and reflecting the prominent role assigned to 'power' in *Pareto on Policy,* Samuels' work is best considered within the context of the process of government (i.e. the first approximation).

Samuels employs two measures to objectively consider the political process. One of the parameters is the continuum between the extremes of *freedom and authority*. The second parameter is the continuum between the extremes of *continuity and change*. The former refers to the degree of control that the

governing elite exercises over the subject classes, whereas the latter measures the degree of social change consequent upon decision-making.

These parameters are considered with reference to three dimensions of political conduct, namely knowledge, psychology, and power. These are then individually related to a range of Paretian concepts associated with the internal elements of social equilibrium. The 'knowledge' dimension incorporates the Paretian concepts of knowledge (i.e. logico-experimental and non-logico-experimental), derivations, and utility of the social system. The 'psychology' dimension refers to sentiment and residues, and their correlations with speculator and rentier conduct,[2] their impact on governing elites, and the consequence for social equilibrium. The 'power' dimension refers to the circulation of elites and social heterogeneity, the associated issues of the ruling class (i.e. the governing elite and the alternative governing elites), and manipulation by force and cunning.

If considered in isolation, the 'knowledge' dimension provides the general context of the policy framework, the 'psychology' dimension relates to *continuity and change* and the 'power' dimension relates to *freedom and control*. However, this oversimplifies Samuels' interpretation because he explicitly accounts for Paretian interdependencies. Actions are not only manifestations of psychic states, they also reveal preferences concerning social states, including individuals' propensity to manipulate by means of force or cunning. As a result, knowledge, psychology and power are inter-related through residues. Persuasion is related to beliefs that accord with sentiments that are objectively observed as residues. As a result, knowledge, psychology and power are all inter-related through derivations as well, but the constant element of derivations is the sentiments they reflect. In all instances, the interdependencies have a basic source—the human psyche—but the interdependencies between each element nevertheless impact on social equilibrium.

These interdependencies blur the distinction between the *freedom/control* continuum and the *continuity/change* continuum. In view of this, Samuels contended that matters related to *freedom and control* can be specified in terms of *continuity and change*. Conversely, *continuity and change* can be considered in terms of *freedom and control* matters (Samuels 1974, p. 154). The relationship that Samuels is seeking to establish runs something along the line that Class I residues (see Section 3.3) provide a psychological basis for preferences related to *change* to also be associated with *freedom*. Conversely, Class II residues provide a psychological basis for preferences related to *continuity* to also be associated with *control*. This is Samuels' most important contribution to an understanding of Pareto's contribution to the study of political processes, and is subject to some scrutiny in this chapter.

Variations on Samuels' approach adopted in this chapter

Overlaying Pareto's concepts with Samuels' headings of knowledge, power and psychology has the benefit of clarifying Pareto's contribution to the study of political processes for scholars unfamiliar with the work of Pareto. However, it results in complications for anyone familiar with Pareto's terms.[3] This may partially explain Samuels' comment that

> It is hard to develop general models of freedom and control and continuity and change, that is, of social control and social change, including meaningful definitions of power and so forth. It is difficult to disentangle the strands of power, knowledge and psychology, in part because what can be developed in terms of one generally readily can be developed in terms of another.
>
> (Samuels 1974, p. 197)

In this chapter Pareto's standard approach will be utilised. That is, the framework of the mechanical analogy for general sociology and pure economics is adopted, and considerable use is made of the distinction between 'form' and 'substance'. This has two advantages. First, it simplifies the analysis. Second, and more importantly, it results in a more general framework, which enables identification of the implicit simplifying assumptions necessary for Samuels' association of *freedom* with *change* and *control* with *continuity* to hold.

Background on the Trattato *and politics*

This section primarily concerns the inductive elements of the *Trattato* that relate to the process of government. It is presented as contextual information for the first approximation developed in Section 8.3.

The development of theory in the *Trattato* (culminating in the theory of social utility) is dominated by long-term inductive examination of ongoing activity rather than irregular and short-term actions. This reflects an explicit acknowledgement that "social processes take a long time to complete" (Pareto 1984, p. 25), and requires a broader perspective than that provided by consideration of direct ends. The focus is on the attempted realisation of broader 'political' (i.e. more subjective and less defined) ends, which are referred to forthwith as the 'broad government' goals of political elites.

As established in Chapter 2, the defining character of non-logical conduct is that the direct objective end is not well related to the subjective intent. Where the subjective purpose concerns 'broad government' goals, there is no single direct end, but usually a series of intermediate or direct ends considered in 'strategic' political context. In this context, the gap between the objective and the subjective is at its greatest, and the potential for instability in the relationship between 'broad government' goals and objective outcomes

is significant. A republican political agenda, a liberal political agenda, a social democratic political agenda, a theocratic political agenda, are all attempts to objectively express 'broad government' goals that reflect human sentiments and inspire political conduct. However, there is an infinite number of political agendas purporting to be republican, liberal, social democratic, etc. All such agendas have a limited life expectancy, followed by a repackaging of elements from defunct agendas in a different order with a different emphasis, along with the inclusion of new elements (often taken from the agendas of competing elites). The enduring feature of the process of government that exceeds the lifespan of particular political agendas is the political struggle for the authority to implement such agendas.

Consequently, objective consideration of the process of government cannot be considered in isolation from its single most enduring feature, namely the struggle for political authority.

By way of analogy with economics, political authority may be regarded as a capital stock that can accumulate, depreciate or be maintained. This political capital depends on, first, direct good-will and support from non-governing elites such as interest groups; and second, the general good-will and support from the subject classes. Direct support, in the form of financial contributions or support in kind (such as favourable media coverage by media organisations), is received from non-governing elites that expect to benefit by indirectly influencing the political agenda through their patronage of the governing elite. This is a fundamental aspect of Pareto's theory of political elites, which as Finer has demonstrated, is grounded in a political system of "patron-client" relationships (Finer 1975).

When the governing elite enjoys strong direct and general support, social equilibrium is stable as a consequence and the elite's stock of political capital is high. When direct and indirect support for the political elite diminishes, the bonds that provide the stability of social equilibrium weaken. If the diminution of support is not reversed, the point is eventually reached where equilibrium becomes unstable, and the authority of the ruling elite to implement and manage policy becomes progressively more tenuous as its stock of political capital depreciates.

However, political authority is not considered in isolation. When Pareto raises the issue of power, he does so in the context of the balance between non-conformist conduct (i.e. individualism or 'individual rights') and conformist conduct (i.e. socialism or 'state's rights'):

> Who is now interested in theories of equilibrium power? Who determines the correct equilibrium between State's rights and individual rights?
>
> (Pareto 1984, p. 30)

The purpose of this section is to consider the relationship between the balance of power and the degree of conformity in the collective from the

objective and subjective aspects of Pareto's analogies. The aspect of utility associated with these analogies is examined in Section 8.3.

Analogies for types of individual conduct within a social collective

The basis of Pareto's study of equilibrium power derives from his analysis of stability of government in relation to the 'circulation of elites and heterogeneity' and the theory of 'spoliation' outlined in the *Systèrnes (*see Chapter 6). However, in the *Trattato,* the theory of spoliation is enhanced by a more subtle and more general analysis of individual "speculators" and "rentiers", and their relation to a "third group" which supports prevailing collective social and institutional arrangements. This marks a starting point for Pareto's analysis of government processes. Analogies for individuals' social conduct are developed which approximate "objective" (i.e. observable) behaviour. However, these analogies are also designed to reflect the personality attributes of individuals which respond to (and create) subjective factors.

"Speculators" are "individuals whose incomes are essentially variable and depend on the person's wide-awakeness in discovering sources of gain" (Pareto 1935, p. 1561). "Rentiers" are "persons who have fixed or virtually fixed incomes not depending to any great extent on ingenious combinations that may be conceived by an active mind" (Pareto 1935, p. 1562). As the name suggests, speculators include people who directly earn income from speculation. Examples include entrepreneurs, owners of marketable securities[4] and land speculators. However, Pareto also includes in this classification anyone who indirectly earns income from activity that involves speculation, such as lawyers, certain engineers, and employees of speculators. All other income earners, essentially people who earn income from savings deposits and bonds, are classed as rentiers.

Pareto's distinction between speculators and rentiers is intended to correct persistent confusion of two distinct types of economic conduct by "capitalists". That is, the confusion between owners of savings and promoters of enterprise (Pareto 1935, p. 1558). Broadly speaking, the owner of savings is Pareto's rentier. The rentier is isolated from entrepreneurs (i.e. Pareto's speculators) because "owners of enterprises and their employees have a common interest, which is in conflict with the interests of mere owners of savings" (Pareto 1935, pp. 1558–59).[5]

While Pareto recognised that the conflict between these "workers" and "capitalists" exerted great force on human conduct, his analytical instruments primarily focused on the balance of power between the state and the individual. The theoretical instruments that Pareto used to analyse the balance of power were his speculator and rentier analogies, plus two further explicitly political analogies with "foxes" and "lions" which are discussed shortly.

Social activity is influenced by the proportions of speculators and rentiers in the economy at any one time. The use of industry protection to benefit

specific groups within society is attributed to a high portion of speculators in government (Pareto 1935, p. 1566). In effect, this describes the despoiling of the rentiers by the government on behalf of speculators. Speculators are part of the direct support base of the ruling class.

> With their unfaltering perseverance and their subtle art of combinations they override all obstacles…. Conservatives yesterday, they are Liberal today, and they will be Anarchists tomorrow, if the Anarchists show any signs of getting closer to power. But the speculators are shrewd enough not to be all of one colour…On the stage one may see them battling one another, Catholics and pro-Semites, monarchists and republicans, free-traders and Socialists. But behind the scenes they join hands, speculators all, and march in common accord upon any enterprise that is likely to mean money.
>
> (Pareto 1935, pp. 1647–48)

Political capital also depends on the support of the subject classes. This varies in response to "broad government" goals and the means by which these goals are pursued. The term 'means' is used very broadly here to encompass the use of force and/or preference manipulation of members of the collective to accept either direct policy ends or substantive policy goals. The instruments of force are administered by public institutions charged with responsibility for law, order and public safety (e.g. police, courts and prisons). Derivations are the instrument of preference manipulation, as exercised in political fora like parliament, press conferences, dissemination of information through marketing channels and electoral campaigns.

To illustrate the importance of force and consent, and the associated balance between the individual and the collective, Pareto developed another two analogies, this time between the "lions" (individuals with an aboveaverage propensity to use force) and the "foxes" (individuals with an above-average propensity to manipulate others). In general, the lions and the foxes are examined in relation to government activity and the regularities associated with the cyclical struggle to retain political authority.

> As regards the governing class…a mere handful of citizens, so long as they are willing to use violence, can force their will upon public officials who are not inclined to meet violence with equal violence…. [I]f they refrain from violence because they deem it wiser to use other means… the governing class resort to 'diplomacy', fraud, corruption—governmental authority passes, in a word, from the lions to the foxes. The governing class bows its head under the threat of violence, but it surrenders only in appearances, trying to turn the flank of the obstacle it can not demolish in a frontal attack. In the long run that sort of procedure comes to exercise a far-reaching influence on the selection of the governing class,

> which is now recruited only from the foxes, while the lions are blackballed.
>
> (Pareto 1935, p. 1515)

The speculator and fox analogies are very closely related. The intrusion of speculator influences in government business enterprises and general government policy—and the exploitation of this intrusion by the fox elements in the ruling elite—results in a significant correspondance between the activities of the speculators and foxes. The index to the *Trattato* notes that the paragraph containing the above quote concerns "speculator government" (Pareto 1935, p. 2020). Speculators and foxes share a cunning pursuit of self-interest, and a loathing to turn to violence. It is not surprising then that speculators may demonstrate a desire to, or be selected to, join the ruling class. Consequently, speculators and foxes may be regarded as two different metaphors for essentially the same personality characteristics, with the speculator analogy generally used in the context of economic interests, and the fox analogy generally used in the political context to balance the analogy with lions.

Rentiers also have an aversion to violence. However, they lack the cunning of speculators and foxes. Consequently, they do not have the attributes to acquire or defend political or economic authority, and tend to be non-elite elements of society. As such, rentiers are reactive rather than proactive elements of society.

In governments dominated by foxes, which are often rich in Class I residues, the process of government is associated with short-term-ism because it is more satisfied

> with the present and less thoughtful of the future. The individual comes to prevail, and by far, over family, community and nation. Material interests and interest of the present or near future come to prevail over the ideal interests of the community or nation and interests of the distant future.
>
> (Pareto 1935, p. 1516)

That is, foxes—and their economic counterparts (speculators)—have an above-normal propensity to discount future benefits and undertake activities with above-average risk in economic, political and social fora. In contrast, for lion-dominated elites, which are often rich in Class II residues, the process of government exhibits a greater than normal propensity to use force to achieve government, and to achieve government objectives. Future benefits are not highly discounted by lions because retention of political and/or economic authority is highly valued.[6]

The key feature of derivations for political analysis is that they are generally indirect and non-confrontational instruments of government. Conversely, force is generally associated with direct and confrontational instruments of government. Therefore, lions are best characterised by a preference for direct

confrontation of political views different to their own, whereas foxes are best characterised by a preference for non-confrontation of politically divergent views. This avoids the unnecessarily 'militaristic' connotation associated with some of Pareto's work.

8.3 Personal utility, expected social utility and 'government'

Pareto's distinction between the aspect of utility and the subjective aspect is particularly important when collective welfare is considered. This is evident from his discussion of speculators:

> In dealing with speculators, as with other elements of the social order, the ethical aspect and the aspect of utility have to be kept sharply distinguished. The speculators are not to be condemned from the standpoint of social utility because they do things that are censured by one or another of the current ethical systems; nor are they to be absolved from any given ethical stand point because they have proved socially beneficial.
>
> (Pareto 1935, p. 1578)

To overcome the analytical difficulties of the path-dependence of nonlogical conduct, Pareto reverts to his inductive Class I and II personality residues (see Chapter 3) and relates this to direct utility. In this regard, he maps an individual's level of utility on the Y axis against conformity with social precepts on the X axis, where the extremes of the X axis represent total conformity and total non-conformity with every precept prevailing in a given society (Pareto 1935, p. 1473). Individuals rich in Class I residues maximise their utility when they behave as non-conformist, and individuals rich in Class II residues maximise their utility when they act as conformist. This is represented graphically in Figure 8.1 in Appendix 8.1.

Fox/speculators demonstrate an obvious similarity with Class I residues, and rentiers with Class II residues (Pareto 1935, p. 1563). The speculator/fox uses cunning to cleverly combine diverse and like elements to realise his immediate ends, while the rentiers plod along.

However, there is no strict identity between speculators and Class I residues; nor is there an identity between rentiers and Class II residues. There is just a similarity or correlation. This explains why Pareto does not examine social utility in relation to the proportion of speculators/foxes and rentiers alone. Instead, he examines social utility in relation to the proportion of overlapping analytical categories, namely: speculators/foxes, lions and rentiers *and* the proportion of personality residues *and* the relationship between elites and non-elites. In relation to speculators and class II residues, for example, he states:

> utility depends on the circumstances in which the activities of the speculators are carried on, and specifically upon the relative proportions

> of speculators to persons strong in class II residues, either in the population at large, or the governing classes. To determine and appraise such utility is a quantitative, not a qualitative, problem. In our day, for instance, the enormous development of economic production, the spread of civilisation to new countries, the remarkable rise in the standard of living among all civilized peoples, are in large part the work of speculators. But they have been able to do that work because they came from populations in which class II residues were numerous and strong.
>
> (Pareto 1935,p. 1578)

The above quote does not contrast speculators with rentiers or lions, but contrasts the proportion of speculators with the proportion of people rich in Class II residues, and both are then considered in relation to elite and subject classes. To investigate the consequences of Pareto's differentiation between his analogies of individual social conduct and his Class I and Class II personality residues, it is useful to distinguish between an individual's 'personal utility' and an individual's expected 'social utility'. The former phrase relates to the benefits that individuals expect to enjoy from their own conduct, and the latter phrase refers to the benefits that individuals enjoy from the conduct of all members of the collective.[7] The terms 'conformist' and 'non-conformist' will be reserved for discussion of individuals' personal utility, and 'conformist collective' and 'non-conformist collective' are reserved for discussion of individuals' expected social utility.

In absolute terms a conformist collective would consist of a single homogeneous group. In absolute terms a non-conformist collective would consist of non-social individualistic elements. Clearly such entities have no counterpart in reality when considered in absolute terms. Here the terms are used within a range that could be considered plausible (i.e. within the biological and emotional needs of human beings). As such, the authority of the state dominates the social order of a conformist collective and the authority of the individual dominates in a non-conformist collective.

In the *Trasformazione della Democrazia,* Pareto introduces another element of the mechanical analogy to his general sociology by comparing social influences that lead to greater uniformity and centralisation of power with the physical notion of centripetal force. Similarly, social influences that lead to an erosion of uniformity and the consequent decentralisation of political authority are compared to centrifugal forces (Pareto 1984, p. 37). An increase in non-conformist action in the collective reveals a centrifugal force. It is associated with an increase in the number and range of social groupings within the collective, and a consequent decrease in the average number of members per social groups. Conversely, an increase in conformist conduct within the collective from centripetal force is associated with a reduction in the number and range of social groupings within the collective, with a consequent increase in the average size of social groups.

For the purposes of clarity, the term 'substantial change' is used in this chapter to indicate a change in the degree of conformity prevailing in the collective political action bought about by action from ruling elites. 'Change in the form of the social collective' is associated with the conduct of ruling elites that need not have any impact on the degree of conformity prevailing in the collective. For example, substantial change is most probable following a change in centripetal and centrifugal forces, such as social upheaval or a violent change in government, that results in a change in the level of state control over social arrangements. A movement from an essentially individualistic system to a socialist system (as defined in Chapter 6), in response to centripetal force, constitutes a substantial change. In contrast, a change in the form of political conduct is likely to be associated with the election of a new government in a stable parliamentary system of government. Similarly, a change from a popular or worker's socialist government to a capitalist's socialist system would constitute a change in the 'form' of the collective if the level of state control in the collective was unchanged.

To consider the centripetal and centrifugal forces that act on the balance between conformist and non-conformist collectives, it is necessary to consider a range of preference types based on a consideration of both individual personal utility and expected social utility. Then, once the preference types are established, they can be related back to Pareto's speculator/fox, lion and rentier personality types.

There are four benchmark combinations of individual personal utility and individual expected social utility profiles that define preference types, as shown in Table 8.1.

As noted earlier, there is no case of identity between fox/speculators and Class I residues, or between lions and Class II residues. There is a significantly greater probability that fox/speculators are rich in Class I residues and that lions will be rich in Class II residues. However, any of the four types of preferences is potentially associated with any of Pareto's analogies of social conduct.

The typical characterisation of a fox/speculator is given by C-type preferences. This type of preference is associated with people whose personal utility is maximised when they behave in a non-conformist manner, and where they expect that social utility would be maximised when conduct in the collective is also generally non-conformist. The typical characterisation of lions is for B-type preferences. This type of preference is associated with people whose personal utility is maximised when their conduct is conformist, and who expect that social utility would be maximised when behaviour in the collective is also conformist.

Superficially it may appear that A and D preference types are internally inconsistent. However, such a conclusion would be incorrect. A-type preference may indicate a wish to act in a non-conformist manner within the confines of a conformist collective. For example, a black marketeer operating in a regulated market. It may also indicate a preference for a re-ordering of the

Table 8.1 Individuals' preference types

	Individual's expected social utility is maximised under a conformist collective	*Individual's expected social utility is maximised under a non-conformist collective*
Personality residue class I (combinations)	A–type preferences	C–type preferences
Personality residue Class II (preservation)	B–type preferences	D–type preferences

'form' of society while generally retaining the level of state influence in social conduct. Similarly, D-type preference may indicate support for a nonconformist collective social order while wishing to remain one of the more conformist elements of the non-conformist collective. For example, employees who gain from speculator conduct, such as paid lawyers and accountants in legal or consulting firms. It may also indicate support for the prevailing 'form' of a non-conformist collective, as well retaining the level of state influence in social conduct.

A graphical exposition of the four preference types is included in the Appendix to this chapter (Figure 8.1). The four preference types are not uniquely correlated to any of Pareto's analogies of social conduct for potential elites.8

The A-type fox/speculator and the A-type lion share a preference for a conformist collective. When they are elements of a non-conformist social collective, they both contribute to centralising centripetal force, with the fox speculator emphasising indirect means to achieve substantial change, and the lion emphasising direct means. When A-types are already elements of a conformist collective, they reveal preferences for a different form of the collective to that prevailing, and/or a preference to maintain the existing social form and personally behave outside the norms of society.

The B-type fox/speculator and the B-type lion share a preference for a conformist collective. When they are elements of a non-conformist social collective, their action is aimed at influencing the collective, the same as for A-type fox/speculators and lions in a non-conformist collective, respectively. When they are elements of a conformist collective, they both reveal preferences associated with defence of the prevailing social form, while personally conforming to social norms. However, the B-type fox/speculator defends the social form by indirect means, whereas the B-type lion defends the soical form through direct and confrontational means.

The C-type fox/speculator and the C-type lion share a preference for a non-conformist collective. When they are elements of a conformist social collective, they contribute to the decentralising centrifugal force, though the fox/speculator uses more indirect means than a lion. When they are elements of a non-conformist collective, they reveal a preference for a different social

form to that prevaling and/or a preference to maintain the existing social form and personally behave outside the norms of society.

The D-type fox/speculator and the D-type lion also share a preference for a non-conformist collective. When they are elements of a conformist social collective, their action is aimed at influencing the collective, the same as for C-type fox/speculators and lions in a conformist collective, respectively. When they are elements of a non-conformist collective, they both reveal preferences associated with defence of the prevailing social form. However, the D-type fox/speculator defends the social norm by indirect means, whereas the D-type lion defends the social form through direct and confrontational means.

Substantial change in the process of government

In the case of a non-conformist collective, centralising centripetal forces are a force for "substantial change", and the decentralising centrifugal forces constitute an obstacle to this change. If the non-conformist collective has endured for some time, the centripetal force is associated with lion and speculator/foxes with A-type preferences, and the opposing centrifugal force is represented by the existing elite with D-type preferences. If the nonconformist collective has not endured for long, then the centripetal force for substantial change is associated with lions and fox/speculators with B preferences, that is, by elements rich in Class II residues who seek to return society to the patriotic and conformist days of the recent past. The opposing centrifugal forces are associated with fox/speculators and lions with C preferences, the moderns of the new elite.

In the case of a conformist collective, the reverse applies. Centralising centripetal forces are an obstacle to substantial change, and decentralising centrifugal forces constitute a force for change. If the conformist collective has endured for some time, the centripetal force is associated with lion and speculator/foxes with B-type preferences and is an obstacle to change. In this case the opposing centrifugal force is represented by a potential new elite rich in C-type preferences, and is a force for change. If the non-conformist collective has not endured for long, then the centrifugal force of the lions and fox/speculators with D preferences is a force for change. That is, elements rich in Class II residues seek to return society to the freedom and non-conformist days of the recent past. The opposing centripetal force is associated with fox/speculators and lions with A preferences, the moderns of the new elite (see Table 8.2).

If analysis of substantial change equates speculator/foxes with C-type preferences and lions with B-type preferences, substantial change in, first, an established non-conformist collective, or second, a conformist collective with a new elite, cannot be well explained. A-type and D-type preferences also need to be considered at this level of analysis.

This examination of substantial change does not support Samuels' association of *freedom* with *change* and *control* (or force) with *continuity*. Substantial change in the equilibrium balance between a non-conformist

Table 8.2 Forces for, and obstacles to, substantial government change

Type of collective	*Force for change*	*Obstacles to change*
Conformist: established elite	Centrifugal: C–type preferences	Centripetal: B–type preferences
Conformist: new elite	Centrifugal: D–type preferences	Centripetal: A–type preferences
Non-conformist: established elite	Centripetal: A–type preferences	Centrifugal: D–type preferences
Non-conformist: new elite	Centripetal: B–type preferences	Centrifugal: C–type preferences

and a conformist collective may be due to the use of direct force (control) or consent (freedom). Direct force is not uniquely related to change from a non-conformist collective to a conformist collective, as consent can also be employed to achieve this end. Similarly, consent is not uniquely associated with a movement from a conformist collective to a non-conformist collective, because direct force can be used to overcome the obstacles to achieving a non-conformist collective.

However, Samuels' result is based on a study of policy in the context of incremental processes (Samuels 1974, p. 6), not substantive change in the context discussed here. As a consequence, his finding is more correctly considered in relation to a change in the form of government, and policy associated with modifying the form that social equilibrium takes, which is discussed in the next subsection.

Local change in the process of government

Governing elites employ derivations that draw on the imagery of substantive change to justify their achievements. Alternative governing elites use derivations to highlight the substantive improvements they will make in office. However, the extent of the substantive change in collective conformity is often less significant than the associated derivations suggest. In stable political systems, such change largely concerns the form of government (such as the replacement of one incumbent government by another, while the enduring constitutional arrangements for political selection remain), or only a moderate incremental change in the degree of collective conformity.

When a collective is relatively conformist, only A-type preferences relate to local change. This is because the forces for local change are limited to lions, fox/speculators and rentiers who support the substantive level of conformity prevailing in the collective, but as they are rich in Class I residues, a preference for a change in the social form is implied. The countervailing conservative force in this context is the conduct of people with B-type preferences.

When a collective is relatively non-conformist, only C-type preferences relate to local change. Forces for change are limited to fox/speculators, lions and rentiers that support the substantive level of non-conformist conduct prevailing in the collective, but as they are rich in Class I residues, a preference for a change in the social form is implied. The countervailing conservative force in this context is the conduct of people with D-type preferences.

To clarify, when Samuels' finding that *freedom* is linked to *change* and that *control* (or force) is linked to *continuity* in the Paretian system holds, it is necessary to separately consider the case of a conformist collective and the case of a non-conformist collective.

Samuels' finding holds in a relatively conformist collective under the following circumstances. A-type fox/speculators rich in Class I residues must constitute the dominant proactive force for change. A-type lions with their emphasis on direct and forceful actions, and A-type rentiers that are also rich in Class I residues and support a conformist collective, must play a secondary function of supporting change sponsored by A-type fox speculators. Conversely, the dominant proactive force for maintenance of the existing collective form must be B-type lions rich in Class II residues. B-type fox/speculators and B-type rentiers who are also rich in Class II residues and support the existing conformist collective must play a secondary role in preservation of the social form.

For the finding to hold in a relatively non-conformist collective, C-type fox/speculators rich in Class I residues must constitute the dominant proactive force for change. Other personality types that support a non-conformist collective and that are also rich in Class I residues (C-type lions and C-type rentiers) must play a passive role by supporting change initiated by C-type fox/speculators. Conversely, the dominant proactive force for maintenance of the existing collective form is D-type lions rich in Class II residues. Other personality types that support the existing non-conformist collective and are also rich in Class II residues (D-type fox speculators and D-type rentiers) must play a secondary role in preservation of the social form.

These are plausible simplifying assumptions. They generalise the fox/speculator analogy to represent the ruling elite as individuals rich in Class I residues, while the lion analogy becomes synonymous with elite individuals rich in Class II residues. However, this eliminates the less common A, B and D-type fox speculators and A, C and D-type lions from analysis of the government process. A more subtle analysis of *continuity* and *change* is possible if the impact of these personality types is incorporated into the analysis, especially when change is considered in the dual contexts of substantial change and local change.

Non-ideology, anti-ideology and normative aspects

An individual's personal utility from conformist or non-conformist behaviour is predicated on the substantive form of society prevailing at a point in

historical time, and applied to behaviour at that point of time. Students of government reason in an ideological manner when they reason

> [as] if the actions of men were nothing but the consequence of rigorous deductive logic from certain pre-existent premises in the spirit of men! As if the circumstances in which men find themselves have no influence on their ideas! Metaphysical conceptions, eliminated from the field of natural sciences, have found refuge in the field of sociology, and it is necessary to track them down and expel them.
>
> (Pareto, cited in Busino 1989, p. 239)

The 'non-ideological' aspects of Pareto's general sociology were paramount for Pareto. As the above quote demonstrates, path-dependence could not be ignored. Once it is acknowledged that the utility field may be unstable when mapped in commodity space, Pareto considered utility at a broader level of generalisation. That is, in relation to the individual's conformist or nonconformist conduct.

It is not unreasonable to assume that the precepts and norms that prevail in a collective are generally understood by the individual members of the collective. Given this, an individual's personal utility from conduct in relation to class norms, group norms, family norms and the norms of political conduct should be reasonably well appreciated and stable, at least at the substantive level. Similarly, the association of conformist and nonconformist conduct is general enough to provide a sound basis for considering utility in general sociology. While utility from individual's conformist or non-conformist conduct can be modified (either by force or derivations), representation of utility in this way may nevertheless be regarded as a 'non-ideological' approximation that assists in identifying general regularities associated with various analogies and types of individual conduct discussed earlier.

However, the non-ideological application of utility analysis to the study of government and public policy is severely constrained. Nowhere is this more evident than in the context of individuals' expected social utility. The influence of "the circumstances in which men find themselves" ensures that the expected social benefits (i.e. social utility) of substantial social change are unlikely to be realised. From the scientific, or 'positive' perspective, this means that the social utility of social change can, at best, only be considered in relation to local variations in their historical context.

Pareto's general sociology is also anti-ideological to the extent that social, economic or political doctrines are rejected as mere ideology (or non-logical derivations) if such doctrines imply that radical change yields great social benefits. Of course this 'anti-ideological' element of general sociology is confined to scientific grounds alone, i.e. a rejection of the view that the benefits of proposed radical change associated with social doctrines would be realised if implemented. It is not, however, a rejection of the potential

social benefits or costs of some elements of a collective believing in such doctrines.

As a result, Paretian analysis of the process of government (as distinct from public policy, as defined in Section 8.1) is primarily associated with the 'forces' for change in the balance of power, and the relatively nonconformist or conformist collectives resulting from this balance. Instead of dwelling on the *a priori* expected social utility of radical change, Pareto considered the centripetal forces towards a relatively conformist collective, or the centrifugal forces towards a relatively non-conformist collective.

However, a scientific role for social utility is not totally eliminated by Pareto from the study of substantial collective change, and from this a normative or ideological element of general sociology can be identified. Specifically, Pareto's analysis points towards moderation in substantive factors, without much regard for social form. In 1907, Pareto indicated in "La Questione Religiosa" that

> In an environment imbued with authoritarian principles, a religion of free will can be useful; in an environment tending to anarchy an authoritarian religion is indispensable if the dissolution of society is to be impeded. On the other hand, it is of little importance if the form of this religion is new or ancient.
>
> (Pareto 1980h, p. 323)

Pareto's general sociology is largely indifferent to changes in government processes that occur within the extremes of highly conformist and highly non-conformist collectives. Social interaction results in an ongoing variation in the balance between individual and state rights, reflecting forces associated with varying proportions of personality residues. However, highly non-conformist or highly conformist collective social orders do not accommodate conduct of the various general classes of residues, implying potential gains in utility from change to less extreme forms of social order.

The extremely limited role assigned to the form of social organisation also implies an indifference (at least at the theoretical level) to the varying incidence of force and consent, or the incidence of direct confrontational and indirect non-confrontational political conduct, that will be associated with different social forms. However, this indifference does not extend to forms of social organisation that facilitate highly non-conformist or highly conformist social orders.

The normative implication of these points—which are a direct consequence of Pareto's generalist philosophy of science—is that change in government processes cannot be considered within the context of maximising social utility. That is, the normative goal for which Pareto's general sociology provides a positive foundation, is limited to the suggestion that social utility is increased by avoiding extreme balances of conformist and non-conformist

government. This contrasts with the normative goal of maximising social utility in Pareto's deductive analysis of the 'public policy' discussed in the next section.

8.4 Public policy

The first approximation to the political process outlined in the previous section is the broadest. To consider the second approximation, the public policy process is considered in isolation from the struggle for political authority. The theoretical basis for this approximation derives from Pareto's static approach to maximising collective economic and sociological welfare, as reviewed in Chapters 5 and 7.

If theory is to provide positive foundations for the study of public policy, then there must be a basis for the subjective intent of policy to agree with the objective purpose. This ensures that the expected change in utility (whether it is represented as a quantity or a variation between ordinal index numbers) is realised to eliminate ongoing revision to the desired end of policy.

The obvious problem here is that Pareto insisted that, for most people, conduct is non-logical where the subjective intent is not constantly correlated with the objective end. Consequently, any expected change in utility from a given act is not necessarily realised, leading to ongoing revision of objective ends. Using Mirowski's terminology again, most human conduct may be represented in a path-dependent utility field where choice is unstable.

This fact of path-dependence in a political context is strongly related to what Giovanni Busino terms Pareto's "distinction between the truth of a doctrine and its social utility" (Busino 1974c, p. 223). On this basis, Busino suggests that it is impossible to use Paretian thought to elaborate a positive approach to policy. It is also the basis for his suggestion that Tarascio's (1968) comments on Pareto's methodological contribution to positive policy appear "gratuitous" (Busino 1974c, p. 223).

There can be little doubt that Busino's comments on the limits of a positive approach to policy correctly apply to the substantive aspects of the first approximation of Pareto's analysis of the political process, as outlined in the previous section (i.e. the 'government level' approximation). However, the analysis in this section suggests that Busino's position does not extend to the second approximation, where the process of public policy can be considered in isolation from the struggle for political authority when social equilibrium is stable. This is implicit in Pareto's own "II Massimo di Utilità per una Collettività in Sociologia", which is given justifiable prominence in Tarascio (1968).

In terms of pure theory, Pareto's approach to collective economic and sociological maximisation is generally discussed on a global basis (though mathematical errors and the use of equivalent surplus instead of distributable surplus constrained the formal definition of economic efficiency to local variations—see Chapter 5). However, in relation to public policy, the extent

of non-logical conduct means that the Pareto principle in economic theory is largely limited to local variation in commodity space, whereas the sociological maxima facilitate consideration of more substantive variations in commodity space.

Global policy

'Global Policy' is used to mean global variations in the individual's location in his or her utility field defined in commodity space due to public intervention. When implementing global policy, governments can act logically by attempting to realise a given level of utility (and recognising that human conduct is non-logical), or governments may act non-logically.

The Pareto theorem outlined in Chapter 5 would constitute an example of logical global policy if utility fields are stable, free competition prevails, and every member of the collective agrees that no other member of the collective should be subsidised by the collective. By 1900, when the *Systèmes* was written, there is no doubt that Pareto appreciated that political and social constraints would prevent realisation of the theorem on a global or economy-wide basis.

The sociological maxima *for* the collective and *of* the collective discussed in Chapter 7 provide the basis for an *approximately logical* global policy. It is not strictly logical because the preferences of the governed are unstable, that is, non-logical. However, policy itself is positive to the extent that it recognises this instability in non-logical preferences, and stabilisation is pursued through political action.

> If we assume that some of the ties imposed by public authority are suppressed without being replaced by others, an infinite number of positions of equilibrium with the provisos of individual maxima as indicated become possible. Public authority interposes to require some and prohibit others. Let us assume that it acts logically and with the sole purpose of achieving a certain utility. (That is rarely the case, but that fact we need not consider here, since we are envisaging not a real, concrete situation, but a theoretical, a hypothetical one.)
>
> (Pareto 1935, pp. 1469–70)

Pareto makes no explicit presumption that ophelimity must be maximised to achieve a sociological maximum. However, Montesano (1997a) has demonstrated that collective ophelimity maximisation is not inconsistent with collective utility maximisation. All that is required is concave utility functions, with the individuals and government weighting of preferences for redistribution independent of the economic efficiency conditions. The intuition behind this result is also present in Pareto's earliest work on collective economic welfare. His first expression of the Pareto theorem without the

Pareto principle, in the context of productive efficiency, explicitly examined the question of how to derive the cheapest means of achieving redistribution goals (Pareto 1982c). In that work, Pareto found that logical pursuit of redistribution will require the maintenance of the production coefficients established under free competition. Use of the wages system, industry assistance, etc., will achieve redistribution goals inefficiently.

Nevertheless, it is significant that Montesano's result, and the corresponding analysis in Pareto's early economic writings, was not made explicit by Pareto in his more mature works. This is probably because results based on deductive analysis that abstract from the struggle of political and economic authority, as carried out in this section, constitute incomplete sociological generalisations. In the *Systèmes* and the *Trattato,* the struggle for political authority and economic interests may vary the coefficients of production (via spoliation) in a way that increases collective economic welfare. Control of capital may be transferred to classes of people who make more productive use of it. For example, when investment sentiment is risk-averse, reflecting very low real discount rates, the transfer of capital to risk-taking speculators with high real discount rates may have positive future economic effects. Similarly, when investment decisions are dominated by very high real discount rates, future economic benefits may result from politically initiated transfers of capital to investors with lower discount rates.

In any event, application of the Pareto theorem to global policy cannot be substantiated in terms of logical conduct of the public authority. To the extent that conduct of the governed is non-logical, the results of the theorem cannot be directly applied to public policy. Perhaps ironically then, arguments in favour of the global political application of the Pareto theorem do not take full account of the distinction between theory and fact, and as such are generally derivations in favour of free competition. In contrast, Pareto's sociological maxima have a logical or positive basis, and can be implemented (though as Pareto acknowledges, this is rarely the case).

To the extent that public policy does not reflect the goal of maximising social welfare, the global policy process is non-logical. In this circumstance, Pareto relies on his analysis of social equilibrium, with a focus on stability and the balance of power along the lines outlined in the discussion in Section 8.3 on the process of government. However, non-logical aspects of public policy may also reflect institutional arrangements—such as fora for voting, parliaments, etc.—which may also be analysed within Buchanan's public choice tradition (see Chapter 6). This would complement the Paretian analysis advocated here. It may also provide an indication of when political conduct, which superficially appears to be independent of the struggle for political authority, should also be considered using the broader government level analysis. This would be the case when the material interests are impacting on the struggle for political authority.

Local policy

'Local Policy' involves small variations in individuals' commodity space as a consequence of public intervention. It can be logical or non-logical.

When the subjective purpose of local policy is to improve social utility, and this is realised, then it is logical. In practice, it is commonly associated with routine 'non-political matters'. It does not concern broad government goals or 'big ticket' policy initiatives, but direct tasks. These may reflect sub-global application of the Pareto principle, such as reduction of compliance costs for taxpayers, or reducing the cost of service provision (perhaps by contracting out services, though this has also become a very 'political' question). However, local policy is only logical if the incidence of 'losers' is consistent with the political welfare function of the logical global policy framework.

Public choice techniques can also be used to diagnose whether this type of policy is logical in a Paretian welfare sense, or whether the self-interest of public administrators dominates.

8.5 Conclusion

It is the contention in this study that Pareto's analysis of the political process can be best appreciated synthetically, as a first approximation that examines government level processes, and a second approximation that examines public policy level processes.

The first approximation explicitly includes the influence of the struggle for political authority and concerns two types of change. The first concerns substantial change along an axis that has a non-conformist collective and a conformist collective at its extreme points. The second concerns change in the form of social organisation, without alteration in the degree of prevailing conformity or non-conformity in the collective.

The second approximation explicitly excludes the influence of the struggle for political authority, and also concerns two types of change. The first concerns government initiatives that cause global variations to individuals' coordinates in their utility field. The second concerns government initiatives that result in local variations in their utility field.

The first approximation is more general than the second approximation.

The order of approximations of the political process is

(i) substantial aspects of the process of government
(ii) the form of government
(iii) global matters of public policy
(iv) local matters of public policy

Samuels' association of *freedom* with *change* and *control* with *continuity* does not apply to substantial aspects of government process, though it is a

good approximation for analysis of the for m of gover nment. Further mor e, ther e ar e very serious constraints on a positive study of the process of gover nment (as Busino notes), but in the case of public policy in isolation from the struggle for political authority, Par eto's work does contribute to a positive theory of policy (as T arascio affir ms).

Finally, focus on these two approximations enables the nor mative aspects underlying Par eto's analysis to be displayed. In the case of gover nment level analysis, extr eme confor mist and extr eme non-confor mist collectives should be avoided because they r educe social utility. At the public policy level, the nor mative goal should be maximisation of social utility. The dif ferent levels of pr ecision in each approximation r eflect Par eto's acute awar eness of the limits of positivism.

Appendix 8.1

Preference types, personal utility and expected social utility

An individual's personal utility is directly associated with the personality residues. Consequently, A and C-type preferences reflect Class I residues, and B and D preferences reflect Class II residues. This relationship is illustrated in Figure 8.1.

An individual's expected social utility for each of the four preference types concerns the substantive issue of the level of collective conformity, as shown in Figure 8.2. A and B-types reveal a preference for a relatively conformist collective, while C and B-types reveal a preference for a relatively non-conformist collective.

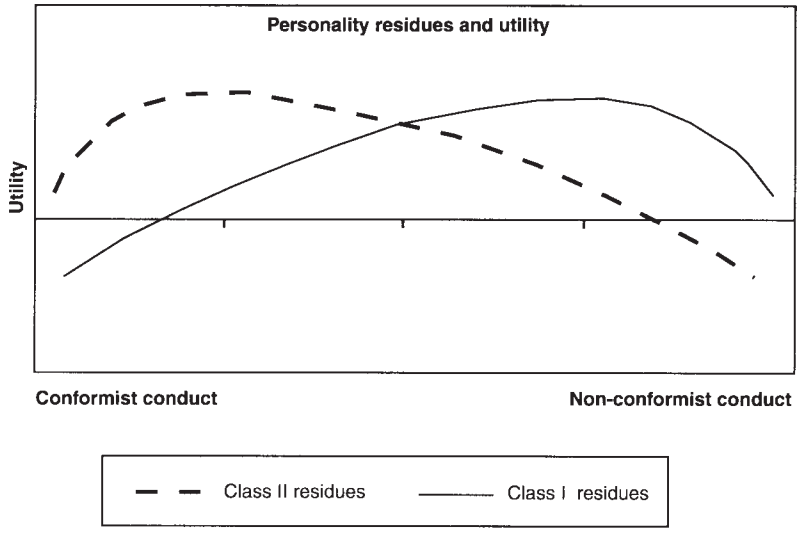
To differentiate A-types from B-types, and C-types from D-types, it is necessary to consider preferences over the 'form' of the social order at the prevailing level of state influence in social conduct.

Importantly, all the above curves—the curve for personal conduct (Figure 8.1), the curve of the substance of social conduct (Figure 8.2) and even

Table 8.3 Preference types, personal utility and expected social utility

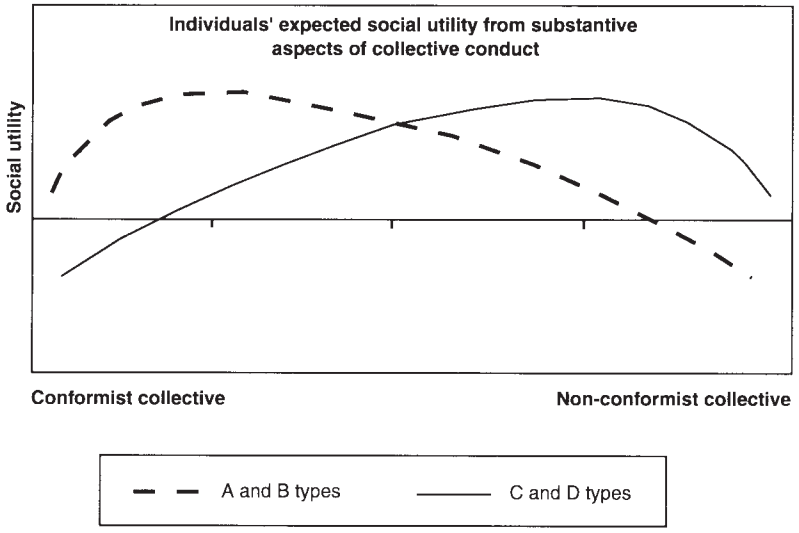
A-type preferences: where personal utility is maximised when one's own conduct is non-conformist, and where the individual expects that social utility would be maximised when conduct across the collective is generally conformist.
B-type preferences: where personal utility is maximised when one's own conduct is conformist, and where the individual expects that social utility would also be maximised when conduct across the collective is generally conformist.
C-type preferences: where personal utility is maximised when one's own conduct is non-conformist, and where the same individual expects that social utility would be maximised when conduct across the collective is also generally non-conformist.
D-type preferences: where personal utility is maximised when one's own conduct is conformist, but where the same individual expects that social utility would be maximised when conduct across the collective is generally non-conformist.

Figure 8.1 Individuals' personal utility



Source: based on the discussion and graph in Pareto 1935, p. 1473

Figure 8.2 Individuals and expected social utility



Source: developed by the author

curves of expected social utility from particular 'forms' of social conduct-have to be regarded in the context of non-logical conduct. They have to be interpreted as applying at a common time and under a common social order, and without any requirement for the expected change in utility from a change in personal conduct or a change in social conduct to be realised.

9 Conclusion

9.1 General finding

The theoretical outcomes from Pareto's pure economics and general sociology cannot be reconciled by a single set of logically ordered rules that establish a unique integration of theory that is verified by fact. The relationship between fact and his fragmented theoretical expositions is largely synthetic. However, the process of synthesis is not arbitrary. It must be consistent with the rapport between economics and sociology established in Pareto's methodology, including the distinction between logical and nonlogical conduct.

This study has defined the rapport between pure economic theory and general sociological theory on the basis of Pareto's comments on the mechanical analogy in these different theoretical disciplines. This rapport defines a general framework that is largely resistant to the claim that its timeless specification is unsound, as the level of determinism varies in relation to the degree of instability associated with conduct. Pareto was clearly aware of the danger of false determinism, and went to great lengths to avoid it while remaining within the mechanical analogy, where elements of the economic and social system are interdependent. His achievement in this regard is remarkable, and is not generally appreciated within the economics profession.

An important consequence of this is that the rapport between Pareto's approach to pure economics and general sociology provides a valuable tool for critically evaluating conduct related to government and public policy. This proposition is supported by the research findings of this study for each of the four research goals pursued.

9.2 Findings related to the goals of the study

Determinism and ideology

The first goal of this study has been to establish the relationship between determinism and ideology in Pareto's work, after consideration of his methodology and his exposition of pure economics and general sociology in terms of an analogy with rational mechanics.

Pareto's work has been criticised for the fragility of the mechanical analogy. The irreversibility of actions in time and the influence of the past on the present and the future have been used in critiques of the analogy. However, such critiques reflect an exclusive focus on Pareto's economic theory, or on his social theory and economic theory in isolation. When the rapport between Pareto's pure economics and general sociological theory is considered, it is found that utility analysis is not always considered solely within the confines of commodity space, but also in relation to the degree of conformity. When Pareto's sociological utility analysis extends beyond commodity space, so too does his mechanical analogy.

Ophelimity may be considered in commodity space when there is a stable relationship between subjective intent of conduct and the objective end of conduct, as evidenced when conduct is repeated in like circumstances. These are the circumstances that Mirowski associates with 'path-independence' in a conserved utility field (i.e. where there is no dispute over the internal logic of specifying theory on a timeless basis).

Utility from non-logical conduct may be considered in commodity space, but only when the system of government and the governing elite has realised a stable power equilibrium. Non-logical conduct is, in practice, the circumstance that Mirowski presents as path-dependence in a utility field that is not conserved. In this context, timeless analysis in commodity space may lead to false determinism. However, Pareto deals with this problem by imposing stability on utility by means of an external (i.e. political) force.

However, since political stability does not endure, Pareto's main considerations of utility from non-logical conduct are not represented in commodity space. When the power equilibrium is unstable, broader levels of analysis prevail because the form of welfare defined by an explicitly determined equilibrium point in commodity space no longer has much scientific value. Instead, timeless regularities associated with matters of substance are considered in place of matters relating to form. In this context, generalisations over the utility of conduct relate to the degree of conformity or non-conformity of individuals' conduct, rather than the precise bundle of goods consumed. When non-logical conduct demonstrates that the utility field defined in commodity space is unstable and path-dependent, regularities associated with the relationship between utility and preference for preservation or change of social arrangements are still evident.

In short, the level of determinism in Pareto's approach to theory is directly correlated with the stability (or conservation) of the utility/-ophelimity field. A consequence of this is the virtual elimination of false determinism. A timeless theory of ophelimity in commodity space is not forced to apply to factual circumstances where it is not warranted. However, this does not mean that Pareto's mechanical analogy is free of ideological influence. As Pareto's philosophy of science emphasises matters of 'substance' over 'form', greater emphasis is placed on the existence of a uniformity in all forms of

society, than on the varying incidence of the uniformity in different forms of society. For example, Pareto highlighted the use of force in all forms of society. An equally relevant issue, though one that is not a first-order issue in Pareto's philosophy of science, is whether there are any variations in the incidence of force and or consent in different forms of society. It would also appear that Pareto's unwillingness to consider the notion of progress as anything other that a question of faith is, at least in some measure, a consequence of his de-emphasis on matters of 'form'.

However, this may be a transitory issue. Pareto envisaged that progress in social sciences would lead to genuinely dynamic theory. As dynamics is unavoidably concerned with the form of things in specific circumstances, the importance of the distinction between form and substance would diminish. Consequently, an advance in scientific knowledge would diminish the gap between Pareto's notions of 'form' and 'substance', and consequently reduce any ideological implications of the distinction.

Collective economic welfare

The second goal of this study has been to review the development of Pareto's application of pure economic theory to the analysis of collective economic welfare. The purpose of this goal was to establish that Pareto's approach to collective economic welfare is an application of pure economic theory when the ophelimity field is stable (or conserved). To draw this implication, the Scorza/Pareto polemic was examined, revealing that it was largely based on a fundamental dispute as to whether collective economic welfare can be examined timelessly.

Scorza's primary concern was with the gap between Pareto's analysis of virtual economic movements and real economic movements. Methodologically, Scorza wanted to model the transition from one economic state to another, which repudiates the mechanical analogy in economic theory. To illustrate this concern, Scorza raised the possibility of multiple equilibria when 'global' variations are considered. He regarded Pareto's treatment as inadequate in that regard.

In this respect, Scorza's concern is based on a rejection of the timeless analysis of the mechanical analogy, because a second point of equilibrium may reflect an alternative state, resulting from an alternative path to that taken to the prevailing equilibrium. That is, Scorza was not primarily concerned about virtual movements in a stable ophelimity field, but with introducing production decisions which explicitly precede exchange into economic theory. Suggestions that Scorza's concerns would have been redressed if Pareto had specified the shape of the indifference curves to preclude multiple equilibria, ignore this aspect of Scorza's concern.

Similarly, the suggestion that Pareto eventually came to side with Scorza, or that his analysis eventually reflected Scorza's concerns, ignores the methodological gulf between the two. Pareto did not abandon the mechanical analogy, and his application of pure economics to the consideration of collective economic welfare after the Scorza/Pareto polemic was always undertaken within the context of a stable ophelimity field. Even Pareto's specification of the Pareto principle in terms of local rather than global variations appears to have more to do with mathematical errors of analysis than the influence of Scorza.

The importance of the Scorza/Pareto polemic is that it clarifies the context in which Pareto considered collective economic welfare. A consequence of this is the need to supplement economic analysis of collective welfare with sociological analysis of welfare, before the community welfare can be considered in a public policy context.

Political sociology compared to economic approaches to politics

The third goal of this study has been to compare and contrast methodological features of Pareto's political sociology with, first, relevant aspects of public choice theory, specifically Buchanan's 'economic' approach to politics; and second, the analysis of 'irreducibly social' goods, the economic analysis of 'merit' goods and the political modification of preferences carried out by contemporary public policy analysts.

For the purposes of this research goal, Buchanan's economic approach to policy is represented by "The Constitution of Economic Policy". To make the comparison and contrast more sharply focused and original, Pareto's system was taken as that developed for the *Systèmes*.

Although Pareto and Buchanan both consider material interests in the political process, Pareto regarded this as a (political) sociology, whereas Buchanan regards it as an economic approach to politics. The basis of this is a different view of economic theory. For Pareto, pure economics is a system of interdependent elements that can be closed and determined by the assumption that behaviour is logical. As economic behaviour in political fora is linked to imperfect social and political selection, and conflict between elites, it cannot be represented as a determinate general system based on stable ophelimity fields. Consequently, behaviour in political fora related to material interest became the subject of study by a different discipline, not economics but political sociology—which ultimately developed in the *Trattato* into a general sociology of non-logical conduct. However, for Buchanan, economics is not about closing a system of general interdependences, but the empirical finding that material interest is a motivating factor in conduct in political institutions.

As a result, the less precise findings of Pareto's sociology of material interests in a political context make for an important comparison with

Buchanan's economics of material interests in a political context, especially as the differences are often complementary rather than contradictory. More specifically, Pareto considered the role of material interests from the perspective of repeated long-term regularities which are not specific to any particular institutional arrangement. In contrast, the focus of Buchanan is on the institutional arrangements, because they define the parameters that constrain choice. This allowed Buchanan to focus on political conduct as an exchange process subject to choice constraints, with the influence of sentiment recognised but (by implication) considered as a stable and constant political influence. Pareto recognised that sentimental influences on political conduct are sometimes stable and sometimes unstable, and that in the long term the stable exchange framework is inadequate.

Nevertheless, the positive elements of Buchanan's economics of politics can complement Pareto's theoretical approach to public policy based on sociological maximisation. In regard to public policy, Pareto's sociological maxima are politically determined benchmarks of stable government, whereas Buchanan's analysis reveals the role that material interest plays in developing these benchmarks, provided that social equilibrium is stable.

The contemporary analysis of 'irreducibly social' goods, merit goods and political modification of preferences is represented in this study by the discussions in *Rationality, Individualism and Public Policy*. Analysis of this book in Chapter 7 revealed that its various authors tended to either rationalise conduct in a logical context, or to reveal a vague intuition that conduct is non-logical or that utility is unstable. In both instances, by not formally distinguishing between logical and non-logical conduct, analysis of policy is not developed as clearly as it could be.

The notion of irreducibly social goods accounts for ongoing social and cultural influences on people. However, the notion is presented as if such goods have a largely constant and unchanging relation to the collective. In a Paretian context, this constitutes logical conduct because actions are repeated when other factors remain unchanged. However, such consistency is, in part, illusory. Interdependence between the elements of society facilitates change in all relations between individuals, things and ideas of social origin when conduct is non-logical, including the observed rapport between the aggregate and so-called irreducibly social goods. If this is ignored, the notion of irreducibly social goods may be used to simply rationalise the preservation of prevailing social norms and institutions.

The notion of merit goods is grounded in preference manipulation. Acceptance that preferences can be manipulated is also an acceptance that the utility field is unstable and, provided individuals don't act illogically, supports the view that conduct is non-logical. Attempts by economists to formally deal with merit goods by specifying 'ethical' or W preferences, implicitly assume that the preference ordering is stable (i.e. that W preferences reflect a stable relationship between utility and ethics), rather than recognising

that ranking of W preferences will change in response to actions to implement these preferences. The only context when this would be valid is when the governing elite has achieved stable social equilibrium and has (temporarily) imposed stability on the utility field.

Government and public policy

The fourth and final goal of this study has been to employ Pareto's methodological distinction between form and substance to develop a timeless and synthetic 'successive approximations' approach to interpreting the processes of government and public policy. That is, to suggest a framework based on the mechanical analogy for the study of government and public policy.

The first approximation recognises the potential instability of utility fields, and examines the process of government in that context, with emphasis placed on the struggle for political authority. For the purposes of generalising the approach, substantial change (where a collective becomes either more or less conformist) is distinguished from local change in the form that the collective takes. The second approximation abstracts from the struggle for political authority so that public policy, including sociological aspects, can be considered in the context of stable ophelimity and utility fields, and in relation to global and local variations.

That is, the order of successive approximation of the political process can be considered in four steps:

(i) substantial aspects of the process of government
(ii) the form of government
(iii) global matters of public policy
(iv) local matters of public policy

Steps (i) and (ii) concern the first approximation, focusing on government level matters. Steps (iii) and (iv) concern the second approximation, focusing on public policy level matters.

Pareto's contribution to a positive theory of public policy is noteworthy when considered in the context of the second approximation, once the first approximation has verified that social equilibrium is stable. When there is political instability associated with forces for change in the substance and form of government, public policy cannot be considered in isolation from action to modify the balance of political power, and a positive theory of public policy (as defined for this study) cannot be developed.

By using this framework, it was established that Samuels' association of *freedom* with *change* and *control* with *continuity* bears no relation to the study of substantial aspects of government process (step (i) above). Nevertheless, Samuels' position does serve as a useful general approximation

for analysis of the form of government (i.e. step (ii) above), and for the study of policy related to the form of government.

Finally, focus on these two approximations enables the normative assumptions underlying Pareto's analysis to be displayed. In the case of government level analysis, Pareto's position is that extremes should be avoided because they unequivocally reduce social utility. Between extremes of social order, potential instability in the relationship between utility and a change in the degree of conformity or in the form of government is too great to permit estimation of changes in collective social welfare. At the public policy level, however, the normative goal should be maximisation of social utility. The difference reflects Pareto's understanding of the limits of positivism in political circumstances (where utility is considered in the context of prevailing social norms).

9.3 Future research

As a consequence of this study, a number of relevant future areas of research have been revealed.

An applied study could be undertaken to test whether the incidence of direct and indirect political forces (e.g. force and persuasion) differs between political forms and systems. This would test the desirability of assigning a greater role for the 'form' of society in social theory than that assigned by Pareto. Consideration could also be given to the question of whether a variation in the incidence of force and persuasion, as collectives evolve from one form to another, provides a scientific basis for specifying social 'progress'.

It may also be useful to undertake applied studies to identify regularities associated with outcomes motivated by ethical propositions that are logical –i.e. repeated and stable in given circumstances. This would assist policy analysts to establish when ethically inspired policy initiatives can be considered in a more conventional 'deductive' framework.

Consideration should also be given to extending the mechanical analogy of policy developed in this research from timeless equilibrium to embrace social processes, dynamics and cycles. This would require a formal transition from the general to specific studies, with an associated reduction in synthesis and increase in the analytical rapport between economics and sociology. Studies that may point the way include Donzelli (1997) and Tarascio (1969b) from the economics discipline, and Powers (1984; 1987) from sociology. The idea for such research dates back at least to Gino Borgatta's observation that there was much work that could be done in applied and dynamic economics utilising the results of Pareto's vast sociological investigations (Borgatta 1924, p. 89). However, as a comprehensive theoretical system of dynamics would have to account for change in economic and social forms over time as a result of variations in unstable utility fields, the complexity of such a research programme remains formidable.

Finally, the forces for centralisation and decentralisation in a federal system of government could be analysed as a case study, using the approach to politics outlined in Chapter 8. One particularly relevant research project, in Australia at least, would be to examine the relationship between taxation policy and government level activity (i.e. taxation, political authority and centralisation of the political system) and taxation and public policy (i.e. taxation, tax assignment across the Federation, and economic and social welfare).

Appendix*

Pareto's major publications

> The international scientific prestige of Vilfredo Pareto is by now solid and stable. It is true that his theories are not universally accepted, but neither economists nor sociologists doubt their importance in the history of the social sciences.
>
> (Busino 1989, p. 3)

An understanding of the evolution of a major figure's approach to economic and social theory is invariably helpful for researchers attempting to fully appreciate that person's contribution. Perhaps this is so for Pareto more than for most other economists, as his ideas and analysis were subject to considerable development over the course of his work.

Cours d'Economie Politique

Pareto's first major work was published in two volumes under the title of *Cours d'Economie Politique* (Pareto 1971a). The first volume was released in 1896 with the second following in 1897. There is no English translation. As the title suggests, it was based on the course in political economy that he was teaching at the University of Lausanne, and is described by Schumpeter as "simply a brilliant Walrasian treatise" (Schumpeter 1954, p. 860).

In the *Cours,* the main original contributions from within the Walrasian system relate primarily to the analysis of economic maximisation. This not only concerns free competition, but also the conditions of economic maximisation under a socialist system (which is realised when the "Minister for Production" uses "precisely the same coefficients of production that free competition would determine" (Pareto 1971a, p. 731).

The *Cours* also contains a wealth of data on population, banking and, of course, income. Most importantly, it incorporates the results of detailed research into the distribution of income. Pareto found that the relationship between the number of taxpayers (N) with an income greater than or equal to a specified level (x), could be reasonably well represented by the equation $N = A / x^{\alpha}$, where the values of the constants A and α are greater than one. This is usually referred to as the Pareto curve or distribution. On examining

income data for a range of countries and cities[1] using the double log transformation of the Pareto curve, log N = log A + alog x, Pareto reported that a tended to be constant at about 1.5. This constancy has also been referred to as Pareto's law. However, it should be cautioned that some authors (Edgeworth 1926) use the term Pareto's law when referring to the form of the Pareto distribution. Together they have inspired interest in why such a distribution might exist, whether the Pareto distribution and law are valid, and what their relevance is for public policy.

The *Cours* is also important for its contribution to methodology. Even though Schumpeter stressed the Walrasian nature of Pareto's early analysis, he was careful to make the qualification that "Pareto's theory floats in a sociology, philosophy and methodology that are not merely different but diametrically opposed to Walras' ideas" (Schumpeter 1954, p. 860). The core of this difference is methodological. Although Pareto's methodological approach evolved over the course of his work, its foundations are very clearly laid in the *Cours*. The key element of his methodology is the notion of successive approximations within and between disciplines.

Within this scheme, the subject of pure economic theory was *homo œconomicus*—an abstract molecule that responds only to economic forces (see Chapter 3). Given this limit, the Walrasian system was further developed and thrived. Complementing the abstract economic theorising was Pareto's descriptive analysis of social evolution, largely reflecting the influence of Herbert Spencer.

Les Systèmes Socialistes

Pareto's next major work was *Les Systèmes Socialistes* (Pareto 1974b). Like the *Cours,* it was published in two volumes over two years, the first in 1901 and the second in 1902.[2] There is no English translation. It is a difficult book to classify. The publisher, Unione Tipographico-Editrice Torinese, included it in its Classici della Politica series, as it is indeed concerned with political actions. Pareto himself said that his intention in writing the *Systèmes* was to research the effect of beliefs on men (Pareto 1974b, p. 6), suggesting that it is a sociological work, and perhaps it is best regarded as a work in the area of political sociology.

The *Systèmes* is of considerable importance to historians of Pareto's economic thought for its characterisation of social processes as interactions between various elites, whose individual elements (i.e. the individuals which together constitute an elite) are united by a mixture of common belief and related economic interests. Class or group conflict is regarded as a uniform feature of all social systems, and is a consequence of individual and group struggles to survive and prosper, given imperfect methods of social selection. Political acts are regarded as an extension of this struggle.

The delineation of the limits of economic theory and its relation to sociological theories is further clarified in the *Systèmes*. Individuals may pursue their self-interest in two ways, either by earning income and creating

wealth, or by despoiling the wealth or income of others (spoliation). The former is the subject of Pareto's pure economics, and the latter is the subject matter of his sociology, and more specifically the subject of the *Systèmes.*

Systems of government that practice spoliation, including redistribution of income, fall within the ambit of a Paretian socialist system. In this regard, fiscal policy, industry policy or welfare measures all constitute types of spoliation examined in relation to elite conflict. There are some similarities between Pareto's approach to spoliation and elites, and the economic approach to politics employed by public choice political economists.

The *Systèmes* also complements the general analysis of spoliation (as a common feature of all social systems) with a positive analysis of doctrines of socialism. The purpose was to distinguish scientific approaches from ideologically influenced doctrines that combine reason with metaphysical notions to appeal to human sentiment. The distinction is critical for two strictly scientific reasons.

First, it assists in the determination of the scientific merit of particular doctrines. One important review concerns Marx's work. Pareto found that the "sociological part of Marx's work is, from a scientific aspect, very much superior to the economic part" (Pareto 1974b, p. 737). By Marx's sociological work, Pareto was largely referring to historical materialism and class struggle. His own study of elites was also founded on the notion of intergroup struggle, though Pareto did not regard all causes of struggle as economic. In relation to historical materialism, Pareto rejected the "popular interpretation" that economic conditions determine the history of a population (or, in Marxian terminology, that the mode of production determines the social relations of production). While he acknowledged the merit of the more restrictive interpretations of historical materialism associated with Georges Sorel, Benedetto Croce and Antonio Labriola, Pareto still regarded the general relationship between economy and sentiment/passion as one of interdependence, not dependence.

Second, it enabled Pareto to differentiate between the scientific merit of a doctrine, and a doctrine's benefit to society. This constitutes one of the core planks that define Pareto's research scheme. Pareto was convinced that human conduct is more influenced by sentiment than science, finding that the "diffusion of a doctrine depends hardly at all on its logical value. Quite the contrary; anyone trying to assess the social effects of a doctrine according to its logical value would expose himself to enormous errors" (Pareto 1974b, p. 144).[3] In examining these issues in the *Systèmes,* Pareto made a notable contribution to the sociology of knowledge and political science (Busino 1974a, p. 26).

The *Systèmes* is also of interest because of its examination of economists' perceptions of liberal society. Notwithstanding Pareto's sentimental support for liberal values—which he openly acknowledged in the introduction to the book—he was dismissive of liberal political ideas pronounced by economists without regard to real-world constraints. On this issue, the chapter

titled "Metaphysical-ethical systems" discusses "liberal Utopia", the notion of economic harmony, and the difference between liberal Utopia and scientific work by economists considered liberal.

Manuale di Economia Politica

In 1906 Pareto released the Italian language *Manuale di Economia Politica* (Pareto 1974c), which was revised by Pareto and translated into French by Alfred Bonnet and published in 1909, and subsequently translated from the French edition into English in 1971 (Pareto 1971c). The main body of the text of the Italian and French editions are, in substance, virtually the same. However, the mathematical appendix to the French edition was revised and significantly expanded (from 38 to 101 pages), largely in response to the 1906 review of the Italian edition by the distinguished Italian mathematician Professor Vito Volterra (1971).

Perhaps the most original contribution in the *Manuale* is the unique interpretation and application of Edgeworth's indifference curves to theory.[4] Instead of deducing indifference curves from 'quantities' of economic utility (or 'ophelimity' in Pareto's terminology; see Chapter 3), Pareto contended that indifference curves could be determined by "direct experience". Index numbers are used to rank these curves, from which one can "arrive at the determination of economic equilibrium" (Pareto 1971c, p. 391).

The index number approach marks Pareto's introduction of ordinal ophelimity into general economic theory so that equilibrium could be expressed without reference to marginal utility ('elementary ophelimity' in Pareto's terminology). He was intent on eliminating the perception that in pure economic theory marginal utility is the cause of price. In doing so he was departing from Walrasian value theory, and made this explicit when he rejected Walras' suggestion that "it is certain that rareté is the cause of value in exchange" (Walras, cited in Pareto 1971c, p. 180).

However, the *Manuale* should not be considered a treatise in new welfare economics. Cardinal measurement of ophelimity is not entirely abandoned, and to modern readers it may appear that Pareto was confused. One reason for the use of cardinal and ordinal measures side by side is no doubt due to Pareto's recognition that his contemporary readers would only be familiar with cardinal ophelimity/utility theory. Consequently, in Chapter 4 of the *Manuale,* on "Tastes", aspects of the analysis "assume" that ophelimity for an individual is a measurable quantity, but only on the basis that such reasoning could be modified to incorporate "indices of ophelimity". Chipman (1976) also suggests another, and more important, reason. Cardinal ophelimity was retained when it provided theory with empirically relevant criteria or hypothesis, such as Pareto's tests for complementary and substitute goods.

Another notable original feature of the book is the re-specification of general equilibrium. Walras' economic functions of exchange, production

and capitalisation, are absorbed within a more general and abstract formulation, with equilibrium considered as the balance between an individual's "tastes" and "obstacles" to the satisfaction of those tastes. In Pareto's pure economic theory, tastes define individual choice. Two types of obstacles determine the limits within which tastes can be satisfied. The first concerns the necessity of "transforming" goods and/or productive services into things that can satisfy tastes, either through exchange, production by the person attempting to satisfy their tastes, or by contracting out production to others. The second obstacle concerns restrictions to the path of transformation when individuals' choices concerning transformation are not totally free. Kirman (1987, p. 806) suggests that the *Manuale* explicitly recognises that individuals influence prices, and it examines equilibrium in the context of what is now termed monopolistic competition well before 1961, when monopolistic competition is generally regarded as being first introduced into a general equilibrium framework.

Related to the re-specification of general equilibrium is the reduced scope of pure theory. Pure economic theory was limited to the case where the expected satisfaction of tastes associated with actions is fully realised. This effectively meant that pure economics only accounted for the "many logical and repeat actions…to procure the things which satisfy tastes" (Pareto 1971c, p. 107). This is largely the outcome of Pareto's ongoing concern with sociological investigations.

Trattato di Sociologia Generale

With the exception of his 1911 contribution on mathematical economics to the *Encyclopédic des Sciences Mathématiques* (Pareto 1955), after the *Manuale* Pareto devoted most of his efforts to the study of sociology. This culminated in the 1916 *Trattato di Sociologia Generale,* which was translated into English in 1935 under the title of *The Mind and Society* (Pareto 1935). However, as Vincent Tarascio perceptively notes, it may

> appear that Pareto, the economist, simply abandoned economics for a new field, one of little interest to economists. This impression is incorrect, and unfortunately has led to almost total ignorance (with the exception of Schumpeter and a handful of others) of Pareto's sociology by economists.
> (Tarascio 1983, p. 119)

Methodology was a major feature of Pareto's previous studies, especially the necessity for intra-and inter-disciplinary successive approximations to approach the concrete phenomenon. This view continues in the *Trattato,* and includes comments that are critical of a non-synthetic single discipline approach.

Following the *Manuale,* action was classed as either logical or non-logical. Non-logical actions were examined under three aspects; the objective aspect,

the subjective aspect, and the aspect of utility. Non-logical actions are influenced by sentiment, which is defined as a person's "state of mind" (Pareto 1935, p. 11). It is deliberately defined very widely, and is not limited to feelings in relation to emotional matters. When Pareto refers to sentiments he includes psychological factors as well as the influence of matters of conscience (i.e. beliefs, ethics, morals, etc.) on decisions to act.

Non-logical actions are the subject of the theory of "residues" and the theory of "derivations". Residues are manifestations of general human sentiment that are common to all forms of society. While the form that a sentiment manifests may vary across different ages and countries, there is a common unifying element that enables classification. A perhaps trivial, but very clear, example is the fact that some numbers were (and still are) regarded as 'perfect' or 'sacred' in various societies—though not the same numbers. The belief that numbers are sacred, as observed in various forms of society throughout human history, is a residue in Pareto's terminology. Derivations are theories, doctrines or simply explanations that rationalise or explain residues. Continuing with the number example, Pareto classed Saint Augustine's reasons for justifying the claim that six is a perfect number—i.e. because it is equal to the sum of its parts, the product of its parts, and the number of days that it took God to create the world—as derivations (Pareto 1935, pp. 585–86). A more recent example of a derivation is the explanation of the decision by Sri Susuhunan Pakuu Buwono XII, the Sultan of Solo, to give a donation of a particular value to student leaders opposing the Indonesian Government of President Suharto. The value of the donation was of 1,111,111 rupiah, because "the number has mystical significance, meaning 'unity in diversity'" (Prince Hariyo Dipokusumo, cited on 2 June 1998 in the *West Australian).*

Residues exert constant but very general influence over human action. For example, the sentiment that associates numbers with sacred properties is a constant influence because the general phenomenon has endured throughout history in a variety of social forms. Derivations, on the other hand, are context-specific, and as such constitute a variable influence. That is, they utilise factors specific to the prevailing social form, that are in a constant state of evolution. Saint Augustine's reason why six is a sacred number reflects a rationalisation that is only plausible to a specific social order in a particular period of history. Outside of a particular form of Christian society (i.e. one where analogy with the Creator's conduct is regarded as evidence of 'truth'), or a particular form of Christian sub-grouping within society that also equates divine analogy with truth, his explanation has no power. As there are numerous sub-groupings within the collectives, and as the collective society is not homogeneous, there is considerable scope for a range of competing derivations within a social form prevailing at particular points in history. These vary in intensity and in duration, and as such constitute variable forces that influence the form of the collective.

It is in Pareto's analysis of the relationship between residues and derivations that he attacks the logical merits of social doctrines. This has contributed to the enormous range of interpretations associated with Pareto and the *Trattato.* Over the course of one celebrated author's academic life, the French sociologist Raymond Aron, no less than four Paretos have been associated with this book. These four Paretos are: "the fascist", the "authoritarian Machiavellian", the "liberal Machiavellian" and the "cynical theorist", who became the "century's preeminent critic of ideology" (Aron, reviewed in Campbell 1986, p. 287). Pareto's attacks on social doctrines cannot be overlooked. However, it would be a mistake to dwell on them at the expense of the insights contained within the analysis of the *Trattato.* In this regard, Norberto Bobbio was without doubt correct when he noted that:

> The *Trattato* is and remains a work which ruins weak stomachs and paralyses the strong, and has, by the very reason of this unpleasant aspect, been more tasted than assimilated, more sniffed than tasted, and almost fifty years since it was first published parts of it still remain to be rediscovered. (Bobbio 1964, pp. 184–85)

To bring the theoretical study of actions closer to the concrete phenomenon, the theory of social utility is developed in the *Trattato,* where social equilibrium evolves in response to interaction between residues and derivations, and also to the forces of interests and elite circulation. Analysis of interests is undertaken using pure and applied economic theory, but supplemented with an explicit recognition of "speculator" and "rentier" interaction. An example is government use of industry protection to serve speculator interests (i.e. the "spoliation" of the *Systèmes).* The impact on social utility from variations in income distribution, potential positive and negative economic impacts of industry protection, public policy generally, rentier and speculator behaviour, and the relationship between interest rates and the level of savings, are all the subject of sociological analysis in the *Trattato.*

The economic importance of the *Trattato* is clear from the articles published in the *Giornali degli Economisti* following Pareto's death, most notably by Borgatta (1924), but also Pantaleoni (1924) and Barone (1924). Since then, different aspects of the *Trattato* which assist in understanding the economic phenomenon have been addressed in a number of publications, including the English language publications by Tarascio (1968; 1969; 1972b; 1973b; 1974; 1983; 1993), Amoroso (1938), Schumpeter (1954) and Samuels in his *Pareto on Policy* (Samuels 1974). Translated extracts of some works by de Pietri-Tonelli and Bousquet (1994), published under the title of *Vilfredo Pareto: Neoclassical Synthesis of Economics and Sociology,* also demonstrate the economic relevance of the *Trattato,* as does Bousquet (1928).

Notes

1 Introduction

1 The *economic* approach emphasises verification of the constancy of the functional form of distribution and the coefficients (Shirras 1935), and also the stochastic basis for maintaining equilibrium income distribution in accordance with the Pareto distribution (Champernowne 1953). The *socio-economic* approach emphasises the policy implications of Pareto's research (Tarascio 1973a) and the relationship between Pareto's theory of circulation of elites and the Pareto distribution (Busino 1974a).

2 For example, the articles included in the following edited collections on Pareto's work:

- the 1924 obituary edition of the *Giornale degli Economisti* dedicated to Pareto, including articles by Barone (1924), Borgatta (1924) and Pantaleoni (1924)
- the 1949 *Vilfredo Pareto: L'Economista e il Sociologo,* Università Commerciale 'Luigi Boconi' (1949)
- the 1973 *Convegno Internazionale Vilfredo Pareto,* Accademia Nazionale Dei Lincei (1975)
- the 1989 conference papers published under the title of *Pareto Oggi* (Busino 1991)
- the 1992 conference papers published in *La Ragione e i Sentimenti: Vilfredo Pareto e la Sociologia* (Rutigliano 1994)
- the 1997 conferences to mark the centenary of Pareto's *Cours* at the Universities of Pisa (published in *History of Economic Ideas,* vol. 3, 1997) and Turin (papers currently in preparation)

3 Perhaps the most recent outstanding example is Maria Luisa Maniscalco for her *La Sociologia di Vilfredo Pareto è il senso della Modernita* (Maniscalco 1994).

2 Methodology

1 These include: the 1896–97 *Cours;* the 1897 article "II Compito Della Sociologia fra le Scienze Sociali" (The Assigned Work of Sociology Among the Social Sciences) (Pareto 1980c); the 1899 article "I Problemi della Sociologia" (The Problems of Sociology) (Pareto 1980d); the 1901–02 *Les Systèmes Socialistes;* the 1900–01 open letters between Pareto (Pareto 1982g; 1982h) and Benedetto Croce (Croce 1953a; 1953b); the 1906 article "II Metodo Nella Sociologia" (The Method in Sociology) (Pareto 1980f); the 1906 article "Programma e Sunto di un Corso in Sociologia" (Programme and Summary of a Course in Sociology) (Pareto 1980g); the 1906 *Manuale;* the 1907 article "L'Economia e La Sociologia del Punto di Vista Scientifico"

(Economics and Sociology from a Scientific Point of View) (Pareto 1980i); the 1916 *Trattato;* as well as constant reinforcements of methodological principles in the two volumes of collected articles that followed the *Trattato,* namely the 1920 *Fatti e Teorie* (Facts and Theories) (Pareto 1980m) and the 1921 *La Trasformazione della Democrazia* (The Transformation of Democracy) (Pareto 1984).

2 This point was made to the author by Fiorenzo Mornati in private correspondence.

3 "Nobody admires more than I do the powerful genius of the founder of positivism, and nobody recognises as much as I do how much human knowledge is indebted to him." (Pareto 1980a, p. 77).

4 Pareto rejected Comte's condemnation of classical political economy—that it utilised "purely metaphysical" concepts. He argued that this criticism is not scientifically founded and is therefore not justified (Bucolo 1980, p. 24) and suggested that Comte's critique of political economy applied more correctly to the doctrines of social evolution—where nothing has been developed that merits the name of a law (Pareto 1980a, p. 85). Bellamy (1990) has shown how the young Pareto was strongly influenced by the liberal ideas of J.S.Mill, and it may be conjectured that his rejection of Comte's critique of political economy reflects some support for Mill's approach to methodology.

5 The full extract of the note in the *Cours* from which this indirect quote is taken is reproduced in Appendix 3.1.

6 As early as 1897, in "II Competo della Sociologia" Pareto had defined social science as "the science of the *interferences* among those various actions that we have noted [i.e. phenomena related to customs, morals, religion and material well-being], and the influence that environment and race exert on the same actions" (Pareto 1980c, p. 133).

7 Translation by F.Priuli in Pareto 1953a, p. 194.

8 Translation by F.Priuli in Pareto 1953a, p. 195.

9 This lack of clarity of definition of the subject is of concern to Pizzorno (1973). Pareto's lack of definition for specific elements of theory was also noted by Millikan (1936) and Macpherson (1937).

10 In 1900, Benedetto Croce suggested to Pareto that economics should be a study of conscious economic acts of will (Croce 1953a, pp. 176–78), and subsequently raised matters that today would now be considered in the context of weakness of will (Croce 1953b, pp. 200–01).

11 The 1949 Italian edition of Volume I is cited here because the subsequent 1971 edition did not include the preface.

12 In fact there are numerous examples in the *Trattato* where Pareto utilised these notions (including Pareto 1935, pp. 312, 1213 1271–321, 1377–78).

13 The term translated here as 'substance' not only includes Pareto's term "la sostanza", but also includes Pareto's use of the term "il fondo", which may also be translated as the foundation.

14 In this regard, Dino Fioret is justified in finding that Pareto's methodology is "an expression of relative scientism of the neo-positive type" (Fiorot 1994, p. 69).

15 Since the logical and non-logical distinction also relates to the selection of the elements of Pareto's method, the formal definitional aspects of the distinction are examined in Chapter 3.

16 Though the psychological basis for these comments is much less clear, and although worthy of consideration, such an investigation is beyond the scope of this study.

17 Of course this does not mean that the analysis of utility of ethical propositions is beyond science, as the subjective aspect is distinct from the aspect of utility. It is just that ethical propositions judged in terms of subjective elements are beyond science.

3 Method: the analytical elements of pure economics and general sociology

1 This translation is from Bucolo (1980, p. 28). Outside of his professional life as an engineer/manager, the young Pareto's extensive political activities in Italy demonstrated a strong commitment to liberty in all aspects of life, including political and economic. Some of this is evident in the general commentary to Wood and McLure (1999). For a detailed treatment of the young Pareto's intellectual and political influences, see Busino (1989, pp. 3–360) and Mornati (1997, pp. 10–46).
2 This marks the start of Pareto's long struggle with the issue of integrability, and is discussed further in Chapter 4.
3 This translation is from Schneider (1961, p. 283).
4 This justification was actually anticipated in the 1894 "Prelazione al Corso d'Economia Politica", where Pareto notes:

> Political economy sees in *utility* a rapport of convenience between a thing and a man. I believe that, notwithstanding the repugnance that we must have for neologisms, the moment has come to qualify precisely this particular species of *utility* which is really too dissimilar to that understood by this name.
>
> (Pareto 1980b, p. 105)

5 Utility means different things to different people within societies (Pareto 1949a, p. 13).
6 The impersonal subject pronoun has been used because *homo œconomicus* is an abstract 'molecule', not a person.
7 Spirito also goes on to argue that Pareto's methodology (that is, synthesis of hypothetical abstraction) does not lead to an advancement in science, but that theory needs to be focused more directly on the collective concrete phenomenon. However, this is a rejection of Pareto's philosophy of science—the focus on general uniformities across social forms—and is not a critique of the means by which Pareto endeavoured to pursue his given goals for science. That is, for Pareto's ideas discussed later in this chapter, it is evident that Spirito's main critique is 'non-logical', but certainly not illogical.
8 The translation is from Tarascio (1968, p. 44).
9 When Pareto qualifies analysis with the comment "if ophelimity exists", he is raising the question of whether ophelimity can be measured (Pareto 1974c, p. 123). That is, is it a real fact? There is no suggestion that it cannot form the basis of a hypothetical proposition, in either cardinal or ordinal form. While it is true that Pareto regarded the cardinal form as redundant (in the context of equilibrium at least, but not necessarily in the case of welfare analysis, etc.), he did not reject it out of hand.
10 That is, that the value of purchases equals the value of sales within budget constraints. In recent years Philip Mirowski has been highly critical of Pareto for failing to appreciate that the mechanical analogy is based on the assumption of integrability. This is examined in some detail in Chapter 4.
11 The first point is undoubtedly important for its direct influence on Hicks (1939) and the major changes in the debates on welfare analysis that followed. Nevertheless, the issue of ordinalism in choice, welfare and value theory *per se* is beyond the scope of this analysis. Georgescu-Roegen (1975, p. 232), Chipman

(1976), and most recently, Gross (1995) and Gross and Tarascio (1998) can be read profitably in this regard.

12 This is, of course, implicit in the *Cours*. *Homo œconomicus* is considered only in the context of the voluntary exchange of consumer commodities, exchange of productive services and savings capitalisation—all of which are based on voluntary actions. Individuals' budget constraints and market clearing based on voluntary choice are the cornerstones of deterministic points of equilibrium.

13 This point was made to the author by Fiorenzo Mornati in private correspondence.

14 That is, excluding action with no subjective purpose, regardless of whether this is associated with a direct objective end or not.

15 Julian Freund (1994) argues that there are three types of utility in Pareto's work:

(i) utility as used in common language
(ii) utility as a force of normative significance
(iii) ophelimity.

16 To name a few, there are Bousquet (1928; 1994), Borkenau (1936), Bobbio (1964), Finer (1966), Parsons (1968), Homans and Curtis (1970), Samuels (1974),Tarascio (1983) and Powers (1987). There are also interesting studies on the secondary literature, such as those by Lane (1978) and Gross (1995, pp. 136–47).

17 Pareto himself is often cited as an authority. It is usually in a scientific context (such as a comment that Pareto found that proposition x holds and, given Pareto's contribution to economic knowledge, there is a high probability that such a proposition is correct). However, Pareto's authority has also been cited in a manipulative context. For example, a consultant engaged by the Western Australian Treasury to train staff in time management showed a video which advised that the distinguished Italian economist Vilfredo Pareto found that workers spend 20 per cent of their time on important tasks and 80 per cent on unimportant tasks. Of course, Pareto made no such finding, but the authority of Pareto was invoked to convince the audience of the proposition's truth. Presumably this so-called Pareto principle of time management is derived in some way from Pareto's study of income distribution.

18 As Pareto made extensive use of the mechanical analogy, it is instructive to consider his discussion of analogies as derivations. "If offered in mere explanation…metaphors and analogies may be used scientifically as a way of getting from the known to the unknown. Offered as demonstration, they have not the slightest scientific value" (Pareto 1935, p. 1053).

19 It should be noted that Ingrao did examine Pareto's studies on methodology and sociology, such as "I Probelemi della Sociologia" (Pareto 1980d) and "L'Economia e La Sociologia dal Punto di Vista Scientifico"(Pareto 1980i). However, her investigation was undertaken to clarify the mechanical analogy in economics, not to consider the rapport between economics and sociology due to their common use of a mechanical analogy.

20 Though Pareto did not confine his views to revealed preferences, as he also suggested binary experiments be used to develop preference maps (see Georgescu-Roegen 1975).

21 The starting point that Sen notes for the development of his meta-preferences is John Harsanyi's division between an individual's utility (based on "subjective" preference) and an individual's social welfare (based on "ethical preferences" which reflect value judgements about the welfare of others). This is directly comparable to preferences based on Pareto's division between ophelimity and utility, and is discussed further in Chapter 7.

22 See Maneschi (1993) for a review of the development of Pareto's pure theory of international trade, its role in policy and the aspects of his analysis which are similar to public choice theory and the theory of second best.
23 This translation is based on Marchionatti and Gambino (1997, pp. 1343–44)

4 Determinism, ideology and the mechanical analogy

1 Revised version of a paper presented to the Second Conference of the *European Society for the History of Economic Thought,* University of Bologna, Italy, 27 February–1 March 1998. Section 4.6 of this chapter is a modified and truncated version of McLure (1999a), as published in the *History of Economics Review.*
2 As noted in Chapter 2, Stark was concerned about the timelessness of Pareto's analysis, and that this concern extends to economic and sociological theory. However, Stark makes no attempt to consider timelessness in the context of Pareto's rapport between economic and sociology, which is critical to any understanding of the role of timeless theory within Pareto's framework.
3 Pareto is also careful to distinguish analogy from 'proof. "We have noted these analogies merely to facilitate a clear comprehension of the theories that we are expounding. They of course are not and could not be offered as proofs" (Pareto 1935, p. 514).
4 Laplace applied the calculus of potentials to force among various particles in the early nineteenth century, and even suggested that the human psychology can be regarded as a continuation of natural laws (Mirowski 1989, pp. 27–28).
5 With the important exception of Pareto.
6 As the use of melodrama is irrelevant to the merit of Mirowski's thesis, it will not be discussed in this study, other than to note that the flavour of some of these comments is evident from Appendix 4.2.
7 This translation is from Chipman (1976, p. 80). Pareto restates this to Pantaleoni in a letter of 26 May 1893: "It appears to me that the individual has an understanding of the final degree of utility and not of total utility. Therefore, I turn to the former, never the latter" (Pareto 1960a, p. 375).
8 Franco Donzelli (1997, pp. 23–24) also identifies Pareto's comments in "Considerazioni sui Principii Fondamentali Dell'Economia Politica Pura" on individuals' inability to appreciate total utility as the basis for the mechanical analogy. However, he regards this as a pretext to realise his dream of modelling "psychical force" as a vector quantity. Donzelli's main concern is that Pareto's use of the market clearing condition to ensure that prices are in equilibrium suggests that prices are in effect exogenously determined by some un-modelled 'social process'. Not only does this have no counterpart in energy physics, Donzelli argues, but also by clinging to the analogy Pareto effectively excluded the study of the process of general equilibration, and more generally stifled progress in the study of economic dynamics. However, as Pareto made it clear in the *Cours* and the *Manuale* that his theoretical representation of equilibrium was a timeless first approximation which did not model the actual transition to equilibrium, Donzelli's critique primarily concerns opportunities to advance economic theory that Pareto missed, rather than errors in Pareto's timeless economic theory. As Paretian dynamics are beyond the scope of this study, the matter will not be pursued further.
9 Although it must be acknowledged that Pareto's emphasis (often implicitly) is on stable equilibrium in the *Cours.*
10 For example, a point of equilibrium and another point which is located at a finite distance from the equilibrium point.
11 As an aside, Pareto's discussion of free competition and monopoly is included in

the *Manuale* in the context of "obstacles" to realising tastes. Obstacles not only concern production, but also exchange (i.e. physical transformations are considered as well as transformations in space and time). Interestingly, another dimension of Mirowski's critique of neoclassical economics is his contention that production theory cannot be specified using field mathematics, because the benefit from production (profit) is not independent of the means employed to produce goods (i.e. production is path-dependent). However, when it is assumed that the path of production is always the cost-minimising path, there can only be one path, and the determined outcome is not complicated by difficulties associated with path-dependence. In contrast, Pareto's analysis of 'type II' transformations in the *Manuale* considers the welfare implications of actions by monopolies that cause other producers to adopt production paths that are different from the cost minimising production path which would prevail under free competition.

12 "The internal forces therefore, are, History, they are even Ethics and Politics, something powerful, but vague and indistinct" (Amoroso 1938, pp. 6–7).

13 The 'applied forces' are those established by the general economic equilibrium of the *Manuale*.

14 An analysis of stable and unstable equilibria in economics is given by Pareto in the *Manuale* (Pareto 1971c, pp. 140–46).

15 As noted earlier, Pareto referred to utility in this context as ophelimity where the utility/ophelimity field in commodity space is effectively stable and enduring.

16 Pareto was in fact the first to introduce variable coefficients of production in his pioneering 1894 article "II Massimo di Utilità Dato della Libera Concorrenza" (Pareto 1982c). The originality of this article for production theory is discussed in Chipman (1976, p. 90). However, as Schultz has shown in some detail, in the 1897 and 1898 *Cours d'Economie Politique* (Pareto 1971a) and the 1906 *Manuale di Economia Politica* (Pareto 1974c), Pareto was concerned about the accuracy of marginal productivity theory when based on a first-degree homogeneous production function (Schultz 1929, p. 521). This reflects his contention that some coefficients of production are determined exclusively by technical considerations in response to the level of output (fixed production coefficients), whereas others are determined by economic considerations when inputs can be substituted (variable production coefficients).

17 The relationship between Pareto and Walras was complex. After a respectful and courteous rapport was established from their first meeting in 1891, a considerable animosity developed after Pareto moved to Lausanne in 1893 to succeed Walras in the chair of Political Economy. Pareto made no secret of the fact that he entirely disagreed with the premise of Walras' social economics (Pareto 1897, p. 491) and in private correspondence he asserted that it was simply foolishness (Pareto 1960c, p. 138). Pareto eventually confided in a letter to Guido Sensini that he and Walras had "become enemies" because he was "unwilling to follow him [Walras] on his metaphysical fantasies" (Pareto, cited in Schneider 1961, p. 261).

However, Pareto never ceased acknowledging the importance of Walras' contribution to the study of the pure theory of free competition, even when their relationship had deteriorated considerably. This is why Pareto made the following comment at the silver jubilee celebration of his association with the University of Lausanne in 1917:

> It is with profound emotion that I accept the testimonies of goodwill with which you have wished to honour me. However, I would like to offer them, at least in part, to my predecessor Walras.
>
> (Pareto 1980, p. 687)

18 Translation from Schneider (1961, p. 290).
19 Translation from Schneider (1961, p. 290).
20 Translation from Finer (1966, p. 124).
21 See Gross and Tarascio (1998).

5 Collective economic welfare

1 This Chapter is a modified version of McLure (2000): "The Pareto-Scorza Polemic on Collective Economic Welfare", *Australian Economic Papers,* September, with copyright held by Blackwell Publishers.
2 Unfortunately this polemic is not well known outside of Italy, as the fascinating series of articles by Pareto and Scorza have not been translated into English.
3 Equation [i] in Appendix 5.1.
4 Pareto did not introduce the distinction between ophelimity and utility until 1896 in the *Cours.* Nevertheless, as the term utility is used in "II Massimo di Utilità Dato dalla Libera Concorrenza" in the same sense that ophelimity is used in the *Cours* and in all subsequent work, the term 'ophelimity' is used when commenting on the 1894 article.
5 However, Pareto eliminated this assumption in his next article (Montesano 1997a).
6 This, of course, ignores the sociological issues that Pareto was later to identify in relation to the power equilibrium and the circulation of elites.
7 While Walras is acknowledged in the second part for his demonstration of the conditions for the "maximum of utility in the use of new capital" (Pareto 1982c, p. 291), it is only a reference to Walras' proposition that capital is efficiently employed when there is an "equality of ratios between the net incomes and the prices of new capital goods" (Walras 1954, p. 296).
8 Equation [v] in Appendix 5.1.
9 Translation by J.S.Chipman (1976, p. 92), though the mathematical symbols have been adjusted to reflect Pareto's original text and the notation employed in this paper.
10 Translation by J.S.Chipman (1976, p. 92), though the mathematical symbols have been adjusted to reflect Pareto's original text and the notation employed in this paper.
11 Montesano (1997b) stresses that Pareto's 'minimal resources' and 'maximal utilities' notions of efficiency may not always coincide. However, he also demonstrates the coincidence between the two notions for weak conditions of monotonicity between utility and resources, even when preferences are incomplete and discontinuous, and in the presence of general externalities.
12 Also cited in Gattei and Guerraggio (1991).
13 Equation [vi] in Appendix 5.1.
14 Equations [vii] and [viii] in Appendix 5.1.
15 The derivation of equation [3] is outlined in Appendix 5.1, between equations [v]–[xii].
16 Equation [ix] in Appendix 5.1.
17 A variation from point I can only result in a zero change in numeraire equivalent for all individuals by violating the equality specified by efficiency condition (equation [3]).
18 Sections 13 and 14 of Appendix 5.1.
19 The translation is from Chipman (1976, pp. 97–98).
20 On this issue of tangency, Paul Samuelson states that the "most important objection to Pareto's exposition is his lack of emphasis upon the fact that an optimum point, in his sense, is not a unique point. If transfers of income from one individual

to another are arbitrarily imposed, there will be a new optimum point" (Samuelson 1947, p. 214). This appears to be a commonly held misconception which Chipman (1976, p. 100) redresses by drawing attention to the section in Pareto's "Di un Nuovo Errore nello Interpretare le Teorie dell'Economia Matematica" response to Scorza.

> The equilibrium point…is not the only one to do so. Also enjoying this property are all the points where the two indifference lines (one appertaining to one individual, the other to the other individual) are tangent. We thus have a locus which could be called the locus of maxima of ophelimities; and if the initial quantities possessed by the individuals are given, and if it is determined that exchange takes place at constant prices, free competition leads precisely to equilibrium at a point on this locus.
>
> (Pareto 1982i, p. 509, translated by Chipman [1976, p. 100])

21 The title is the same as Pareto's "1894 Massimo" article, except it is prefaced by the phrase "A proposal on…".

22 However, it should be noted that Pareto's numerical example did satisfy the second-order conditions of variation (Montesano 1991, p. 124).

23 Pareto's article also acknowledges the possibility of multiple price equilibria (i.e. where he notes that the roots of some price equations may yield at least two solutions, or even no solutions), but he considered that "for now these problems have little value; there are things of much more importance in mathematical economics of which we are still ignorant and that demand to be studied first. Things must be addressed one at a time" (Pareto 1982i, p. 505). Gattei and Guerraggio (1991, p. 98) pointed out that Scorza reported these comments by Pareto.

24 In discussions with the author concerning this matter, Professor Montesano suggested that it is not possible to view Pareto's conception of indifference curves as anything other than convex functions.

25 Indifference curve where $f(x\ Y\ \mu) = 0$.

26 The author first read a reference to this quote in Chipman (1976, p. 108).

27 Gattei and Guerraggio (1991, pp. 102–03) link Scorza's concerns on this matter to Knut Wicksell's critique of Walrasian production theory, on the grounds that it raises the relationship between given variables and variables determined in time and the associated issue of "realism in theory".

28 Relative prices of goods equal the ratios of elementary ophelimities.

29 It should be noted that Scorza's concern with using fixed prices in Walrasian general equilibrium actually predates the Scorza/Pareto polemic. He raised the concern in his April 1902 article, "Osservazioni sulle Teoria del Baratto Secondo il Prof. Walras" (Scorza 1902a). The important difference being, that "Osservazione su alcune Teoria di Economic Pura" is directed specifically at Pareto, using the *Cours* as the point of departure for much of the work.

30 Individuals weight the utility of other members of society, and the government makes interpersonal comparisons and converts multiple subjective assessments into a single subjective homogeneous assessment of collective welfare. For further details, see Tarascio (1969; 1993) and Chapter 7 of the present study.

31 Chipman's comments also refer to Pareto's approving quote of Pierre Bovin that is cited in the same footnote. The citation suggests that Walras reasons in a

vicious circle, and even after having this pointed out to him by the most appreciative of critics, he would not see the tautology (see Pareto (1935, pp. 1467–68)).

32 Pareto's errors on this matter are detailed in Chipman (1976, pp. 106–07).

33 To match the text of this paper, expressions [3] and [4] have been substituted in the above quote for Pareto's actual reference to equations 112 and 147 of the *Manuel*.

34 Allais' examination of Pareto's contribution to the study of equivalent surplus, and its relation to distributable surplus, is included in Allais (1975; 1985). Distributable surplus measures the collective minimum (numeraire) compensation that would be required to return individuals to the same level of ophelimity they would enjoy under free competition. The comparable equations for equivalent and distributable surplus are discussed in Appendix 5.1. Montesano (1991) makes extensive use of this distinction in his assessment of Pareto's work on collective economic welfare.

35 The notion of surplus (be it equivalent or distributable) in studies of economic welfare is measured by the numeraire. However, even though the quantity of the numeraire can be objectively established, surplus is not a proxy cardinal measure of change in collective ophelimity. Ophelimity represents a rapport between persons and things that cannot be subject to objective interpersonal comparison. Nevertheless, when the numeraire is positively valued by each member of society, the surplus can be regarded as an ordinal indicator of changes in collective economic welfare.

36 Equations [iii] and [iv] are actually specified in terms of good A, not ophelimity associated with good A. The inclusion of ophelimity in the headings reflects Pareto's discussion in Part I of the "1894 Massimo" article (i.e. before Pantaleoni's and Barone's comments).

6 *Les Systèmes Socialistes* and Buchanan's constitutive elements of economic policy

1 An earlier version of this chapter was presented to the Tenth Conference of the *History of Economic Thought Society of Australia,* University of Notre Dame Australia, Fremantle, 17–18 July 1997.

2 The "Constitution of Economic Policy" is a transcript of the acceptance speech that James Buchanan delivered on 8 December 1986 in Stockholm, when he received the Nobel Prize in Economic Science. In large part, it compares the finance theory of Knut Wicksell with that of the public choice school.

3 Studies published in English that contain a discussion of the *Systèmes* include Bousquet (1994), Zeitlin (1968) and Finer (1966). Most English language studies of Pareto's approach to public policy and government (e.g. Samuels 1974) focus on the *Trattato di Sociologia Generale,* rather than the *Systèmes*.

4 See pp. 85–6.

5 Bhagwati (1982) is a good example. He analyses 'directly unproductive profit seeking' activities using a taxonomy which distinguishes between 'legal' and 'illegal' activities as well as whether the actions are 'initially' or 'finally' distorting or distortion free.

6 The concern was raised in the context of historical determinism, though it is equally applicable to the determinism of hypothetical propositions.

7

> When a living creature loses the sentiments which, in given circumstances, are necessary to it in order to maintain the struggle for life, this is a sign of degeneration, for the absence of these sentiments will, sooner or later, entail the extinction of the species.

(Pareto 1974b, p. 154. The translation is from Finer 1966, p. 135)

8 The translation is from Finer (1966, pp. 129–30).

9 This is in contrast to the 'positive' elements of public choice which imply that economists, who have a variety of economic and other interests, may act in various choice environments (including political institutions) to pursue their interests.

10 Consideration of redistribution generally, or redistribution of income from capital in particular, may appear contradictory to the assumed constancy of a from the Pareto distribution (i.e. $N = Ax^{-a}$, where x is an income value and N is the number of individuals with income greater than or equal to x). However, the constancy of a is based on empirical analysis, the important feature being that the substantive fact of inequality is associated with a considerable regularity in the form of income distribution. As Tarascio (1973a) emphasises, Pareto also applied his income distribution formulation to consider the theoretical relationship between per capita incomes, minimum wages and inequality. Within this context, Pareto used a as a variable, not a constant, and defined the index of inequality (U) as the ratio of the number of individuals with incomes above x to the number of individuals with an income above a minimum income h (i.e. $U_x = N_x / N_h$), or its equivalent $U_x = (h / x)^a$. An increase in U_x indicates a reduction in income equality, and this is generally associated with a reduction in a.

11 The three other obligations are designed to establish that the reforms can actually be accommodated by society. They are the requirements (Pareto 1974b, pp. 563–64)to:

- put the proposal intelligibly, clearly and precisely because vague abstractions cannot be practically implemented;
- reconcile the proposed form of distribution with the characteristics of the society in question. More specifically, establish that a policy-induced redistribution can be maintained by forces internal to society; and
- if the form of distribution proposed requires a particular form of government, it must be proved that this form of government is real and not mythical.

12 In 1913 Pareto examined this issue formally in *Il Massimo di Utilità per una Colletività in Sociologia* (Pareto 1980k), which was reviewed by Buchanan (1960, p. 67).

13

> If society were a homogeneous entity, if men were exactly similar, one like the other and all feeling the same sensations at the same time, the problem of distribution would be drastically simplified. Its complication is born precisely of this; that it is about the procurement of the maximum of well-being, not for similar beings, but for beings that differ in their tastes, their strength, their quality, their habits, their virtues, their vices and their defects.
>
> (Pareto 1974b, p. 568)

7 Rationality, individualism and public policy

1 This chapter is a slightly modified version of McLure (1997): "Rationality, Individualism and Public Policy in the Light of Pareto", as published in *History of Economics Review*.

2 Since many of the subsequent issues related to the provision of merit goods go beyond irrational action, the concept has been considered further in Section 7.4.
3 Translation from Finer (1966, p. 108).
4 Parsons notes that Pareto's utility o/the community implies a common system of ends and "marks a radical difference from the sociological individualism usual in the positivistic tradition" (Parsons 1968, p. 267). Economists would also agree that politically assessed, interpersonal preference comparisons mark a deviation from methodological individualism.
5 Except for a proportionality constant.
6 Harsanyi considers the matter far more formally than Pareto, developing theorems from explicit postulates, and supplying proofs.
7 The term 'rationalised' is used deliberately in this sentence, because verifying the revelation of preferences for redistribution is a difficult task.
8 This implies that the tax price and the market price are the same.

8 Government and public policy

1 It should be noted that the Italian economist Mauro Fasiani (1949) has also attempted to reconcile Pareto's approach to public policy, associated with his sociological maxima and social equilibrium, with the discipline of public finance. However, he did not integrate the broader notion of government (as defined for the purposes of this chapter) with public finance. The integration was largely limited to Pareto's deductive sociological analysis of welfare maximisation, which is the subject of public policy (as defined for the purposes of this chapter). Another Italian economist, Benvenuto Griziotti (1949), adopted a much broader approach. He suggested that the 'Pareto-Pantaleoni' school examined three disciplines of public finance; namely

   (i) the science of finance
   (ii) political economy and finance (which considers finance as an instrument for anti-cyclical stabilisation and the politics of public investment)
   (iii) the sociology of finance (where public finances are interrelated with social phenomena)

2 Pareto's use of the terms 'speculator' and 'rentier' is described in Section 8.2.
3 This requires

   (i) the establishment of a relationship between Pareto's specific elements of his social equilibrium and Samuels' headings
   (ii) examination of the interdependencies between Pareto's elements of social equilibrium
   (iii) a re-assignment of the outcome of these interdependencies under the broad headings of knowledge, power, and psychology

4 Excluding (some) small stockholders exploited by executives and large stockholders (Pareto 1935, p. 1645).
5 Pareto also points out that entrepreneurs have some capacity to pass on the economic incidence of high wages and taxes through higher prices, whereas owners of savings are price takers without the means to either maintain their purchasing power, or to pass on financial taxes or charges.
6 Given Pareto's emphasis on the power equilibrium, he should have provided an analysis of the forms of force that was as comprehensive as his analysis of derivations. For example, the forms of force and and the incidence of the various

forms of force under different forms of government could have been studied in much greater depth.

7 The rationale for this distinction is derived from Pareto "Il Massimo di Utilità per una Collettività" (Pareto 1980k). This article is properly the subject of 'policy' matters in Section 8.4 because it considers utility in the context of commodity space (and not in relation to conformist conduct). Nevertheless, it does provide the logical basis for separately considering utility from one's own conduct and utility from the conduct of every member of the collective. Furthermore, as discussed in Chapter 7, such a division has some similarities with the analysis of Harsanyi (1955).

8 Rentiers are the non-elite elements of the political system; their preferred direction for social change is largely reactive rather than proactive. However, their personal utility and individual expected social utility profiles can be readily derived on the same basis as those derived earlier for fox/speculators and lions. Although an increase in force may be implicit in their preferred social order (e.g. A-type rentiers), they are reluctant to employ force personally, and may be influenced by derivations that ethically justify the use of force as a last resort. Derivations may be used to modify rentier expectations concerning the use of force. A-type rentiers may also be influenced by ethical propositions with little regard for real constraints. Preference modification by the governing elites' use of derivations was briefly discussed in the previous chapter in relation to merit goods.

Appendix: Pareto's major publications

* This Appendix draws extensively on parts of the general commentary to the edited collection entitled *Vilfredo Pareto: Critical Assessments* by Wood and McLure (1999).

1 England, Prussia, Saxony, Peru, Italy, plus some European cities (including Paris, Florence and Perugia).

2 These years correspond to those in Giovanni Busino's bibliographical note included in *I Sistemi Socialisti* (Busino 1974, p. 67). In some other references, the years are cited as 1902 and 1903.

3 This translation is from Finer (1966, p. 126)

4 Although, Pareto's ideas on 'the fact of choice' and economic theory were foreshadowed in his two 1900 articles titled "Sunto di alcuni Capitoli di un Nuovo Trattato di Economia Pura" (Pareto 1982e; 1982f).

Bibliography

Accademia Nazionale Dei Lincei (1975) *Convegno Internazionale Vilfredo Pareto (Roma 25–27 Ottobre 1973),* Atti dei Convegni Lincie 9, Accademia Nazionale Dei Lincei, Roma.

Allais, M. (1968) "Pareto, Vilfredo: Contributions to Economics", *Encyclopedia of the Social Sciences,* Macmillan, New York, vol. II, pp. 399–411.

——(1975) "The General Theory of Surplus and Pareto's Fundamental Contribution", *Convegno Internazionale Vilfredo Pareto (Roma 25–27 Ottobre 1973),* Atti dei Convegni Lincie 9, Accademia Nazionale Dei Lincei, Roma, pp. 109–63, reprinted in J.C.Wood and M.McLure (eds) (1999) *Vilfredo Pareto: Critical Assessments of Leading Economists,* 4 vols, Routledge, London, vol. 1, pp. 428–73.

——(1985) "The Concepts of Surplus and Loss and the Reformation of the Theories of Stable General Economic Equilibrium and Maximum Efficiency", in *Foundations of Economics: Structures of Inquiry and Economic Theory,* eds M.Baranzini and R.Scazzieri, Blackwell, Oxford, pp. 135–74.

Amoroso, L. (1938) "Vilfredo Pareto", *Econometrica,* vol. 6, no. 1, pp. 1–21, reprinted in Wood and McLure (1999) vol. 1, pp. 86–105.

——(1949) "Pareto Matematico ed Economista", in *Vilfredo Pareto: L'economista e il Sociologo,* Università Commerciale "Luigi Boconi", Casa Editrice Rodolfo Malfasi, Milano, pp. 1–19.

Aqueci, F. (1999) "Testi, Norme, Sistema Sociale: La Problematica dell' Equilibrio in Pareto", *Revue Européenne des Sciences Sociales,* vol. 37, no. 16, pp. 237–44.

Backhaus, J. (1978) "Pareto on Public Choice", *Public Choice,* vol. 33, no. 1, pp. 5–17.

Baranzini, R. and Bridel, P. (1997) "On Pareto's first Lectures on Pure Economics at Lausanne", *History of Economic Ideas,* vol. 3, pp. 65–88.

Barone, E. (1924) "L'Opera di Vilfredo Pareto e il Progresso della Scienza", *Giornale degli Economisti,* vol. LXV, pp. 20–6.

——(1935) "The Ministry of Production in the Collectivist State", in *Collectivist Economic Planning,* ed. F.A.Hayek, Routledge and Kegan Paul, London, pp. 245–90.

Bellamy, R. (1990) "From Ethical to Economic Liberalism—The Sociology of Pareto's Politics", *Economy and Society,* vol. 19, no. 4, pp. 431–55, reprinted in Wood and McLure (1999) vol. 3, pp. 253–78.

Bergson (Burk), A. (1938) "A Reformation of Certain Aspects of Welfare Economics", *Quarterly Journal of Economics,* vol. 52, pp. 3–26, reprinted in Wood and McLure (1999) vol. 2, pp. 297–316.

——(1983) "Pareto on Social Welfare", *Journal of Economic Literature,* vol. 21, no. 1, pp. 40–60, reprinted in Wood and McLure (1999) vol. 3, pp. 348–57.

Bhagwatti, J (1982) "Directly Unproductive Profit Seeking (DUP) Activities", *Journal of Political Economy,* vol. 90, no. 5, pp. 988–1002.

Bhatty, I.Z. (1954) "Some Aspects of the Writings of Pareto and Veblen", *Indian Journal of Economics,* vol. 35, pp. 123–30, reprinted in Wood and McLure (1999) vol. 4, pp. 359–66.

Blaug, M. (1985) *Economic Theory in Retrospect,* Cambridge University Press, Cambridge.

——(1992) *Pioneers in Economics 35: Vilfredo Pareto (1848–1923),* Edward Elgar, Aldershot.

Bobbio, N. (1961) "Vilfredo Pareto's Sociology in his Letters to Maffeo Pantaleoni", *Banca Nazionale del Lavoro Quarterly Review,* vol. 14, no. 58, pp. 269–316, reprinted in Wood and McLure (1999) vol. 1, pp. 180–96.

——(1964) "Introduction to Pareto's Sociology", *Banca Nazionale del Lavoro Quarterly Review,* vol. XVII, no. 69, pp. 183–206, reprinted in Wood and McLure (1999) vol. 3, pp. 32–51.

Borgatta, G. (1924) "I Rapporti fra la Scienza Economica e la Sociologia nell'Opera Paretiana", *Giornale degli Economisti,* vol. LXV, pp. 81–9.

Borkenau, F. (1936) *Pareto,* Chapman and Hall, London.

Bousquet, G.H. (1928) *The Work of Vilfredo Pareto,* The Sociological Press, Hanover.

——(1961) "Vilfredo Pareto (1848–1923): Biographical Notes on the Occassion of the Publication of His Letters to Pantaleoni", *Banca Nazionale Del Lavoro, Quarterly Review,* vol. 14, no. 58, pp. 317–60, reprinted in Wood and McLure (1999) vol. l, pp. 197–234.

——(1994) "Pareto and Socialism", in *Vilfredo Pareto: Neoclassical Synthesis of Economics and Sociology,* eds A.de Pietri-Tonelli and G.Bousquet, Macmillan, London, pp. 29–40.

——(1994) "The Sociologist", in *Vilfredo Pareto: Neoclassical Synthesis of Economics and Sociology ,* eds A.de Pietri-Tonelli and G.Bousquet, Macmillan, London, pp. 41–59.

Brennan, G. (1990) "Irrational Action, Individual Sovereignty and Political Process: Why there is a coherent 'Merit Goods' argument", in *Rationality, Individualism and Public Policy,* eds G.Brennan and C.Walsh, ANUTECH, Canberra, pp. 97–118.

Brennan, G. and Walsh, C. (eds) (1990) *Rationality, Individualism and Public Policy,* ANUTECH, Canberra.

Bridel, P. (1991) "Equilibrio, Statico Comparata e Analisi Dinamica in Pareto. Osservazioni sul Contributo di Siro Lombardini", in *Pareto Oggi,* ed. G.Busino, il Mulino, Bologna, pp. 43–52.

Bruni, L (1997) "The Unwritten 'second edition' of Pareto's *Cours d'Economie Politique* and its Italian Translation", *History of Economic Ideas,* vol. 3, pp. 103–26.

——(1999) "The Historical School Taken Seriously: The debate on the 'Economic Principle' according to De Viti, Pantaleoni and Pareto", *Revue Européenne des Sciences Sociales,* vol. 37, no. 16, pp. 149–72.

Buchanan, J. (1960) "'La Scienza delle Finanze': The Italian Tradition of Fiscal Theory", *Fiscal Theory and Political Economy: Selected Essays,* ed. J.Buchanan, University of North Carolina Press, Chapel Hill NC, vol. 6, pp. 24–74.

Buchanan, J. (1962) "The Relevance of Pare to Optimality", *Journal of Conflict Resolution,* vol. 6, pp. 341–54.

——(1965) "An Economic Theory of Clubs", *Economica,* vol. 32, no. 125, pp. 1–14.

——(1987) "The Constitution of Economic Policy", *American Economic Review,* vol. 77, pp. 243–50.

——(1995) "Interview with James Buchanan, September 1995", Nation Website, http://cc.kangwon.ac.kr/~kimoon/docs/int959.html.
Buchanan, J. and Tullock, G. (1962) *The Calculus of Consent,* University of Michigan Press, Ann Arbor.
Bucolo, P. (1980) *The Other Pareto,* Scolar Press, London.
Busino, G. (1974a) "Introduzione", *I Sistemi Socialisti,* V.Pareto, Unione Tipografico-Editrice Torinese, Torino, pp. 9–52.
——(1974b) "Nota Bibliografia", *I Sistemi Socialisti,* V.Pareto, Unione Tipografico-Editrice Torinese, Torino, pp. 65–117.
——(1974c) *Gli Studi su Vilfredo Pareto Oggi,* Bulzoni Editore, Roma.
——(1980) "Nota Biografica", *Vilfredo Pareto Oeuvres Complètes, Ecrites Sociologiques Mineurs,* ed. G.Busino, Librairie Droz, Geneva, tome XXII, pp. 59–67.
——(1987) "Vilfredo Pareto", in *The New Palgrave: A Dictionary of Economics,* eds J.Eatwell, M.Milgate and P.Newman, MacMillan Press, London, vol. 3, pp. 799–804.
——(1989) *L'Italia di Vilfredo Pareto: Economia e Società in un Carteggio del 1873–1923, vol. I,* Banca Commerciale Italiana, Milano.
——(1994) "Prefazione", in *La Sociologia di Vilfredo Pareto e il Senso della Modernità,* M.L.Maniscalco, FrancoAngeli, Milano, pp. 7–10.
Busino, G. (ed.) (1991) *Pareto Oggi,* II Mulino, Bologna.
——(1996) *Vilfredo Pareto: Una Teoria Critica della Scienza sulla Società,* Biblioteca Universale Rizzoli, Milano.
Campbell, S.L. (1986) "The Four Paretos of Raymond Aron", *Journal of the History of Ideas,* vol. XLVII, pp. 287–98.
Cardini, A. (1997) "Libera Concorrenza e Teoria delle 'Elites', Le Contraddizioni di Pareto e il Centenario del *Cours d'Economie Politique (1896–1897)", Studi e Note di Economia,* vol. 1/97, pp. 35–58.
——(1999) "Pareto's Curve of Wealth Distribution and the 20th Century Events", *Revue Européenne des Sciences Sociales,* vol. 37, no. 16, pp. 141–48.
Champernowne, D.G. (1953) "A Model of Income Distribution", *Economic Journal,* vol. 63, pp. 318–51.
Chipman, J. (1971) "Introduction to Part II", in *Preferences Utility and Demand,* eds J.Chipman, L.Hurwics, M.Richter and H.H.Sonnenschein, Harcourt Brace Jovanovich, New York, pp. 321–31.
——(1976) "The Paretian Heritage", *Revue Européene des Sciences Sociales,* no. 37, pp. 65–173, reprinted in Wood and McLure (1999) vol. 2, pp. 157–257.
Cirillo, R. (1973) "Pareto and Contemporary Welfare Economics", *Revue Européenne des Sciences Sociales,* vol. 11, no. 30, pp. 145–53, reprinted in Wood and McLure (1999) vol. 2, pp. 332–39.
——(1979) *The Economics of Vilfredo Pareto,* Frank Cass, London.
Clerc, J.O. (1942) "Walras and Pareto: Their Approach to Applied Economics and Social Economics", *Canadian Journal of Economics and Political Science,* vol. VIII, November, pp. 584–94, reprinted in M.Blaug (1992) *Pioneers in Economics 35: Vilfredo Pareto (1848–1923),* Edward Elgar, Aldershot, pp. 270–80.
Crippens, T. (1990) "Charles H.Powers, 'Vilfredo Pareto'", *Journal of the History of the Behavioral Sciences,* November, pp. 253–57, reprinted in Wood and McLure (1999) vol. 3, pp. 279–84.
Criziotti, B. (1949) "Alla Scuola di Vilfredo Pareto e Maffeo Pantaleoni", Università Commerciale "Luigi Boconi", Casa Editrice Rodolfo Malfasi, Milano.

Croce, B. (1953a) [1900] "On The Economic Principle: A Letter to Professor V. Pareto ['Sul Principio Economico', trans. C.M.Meredith]", *International Economic Papers,* vol. 3, pp. 172–79, reprinted in Wood and McLure (1999) vol. 1, pp. 237–44.

——(1953b) [1900] "On The Economic Principle: A Reply to Professor V.Pareto ['Replica all'articolo del Professore Pareto', trans. C.M.Meredith]", *International Economic Papers,* vol. 3, pp. 197–202, reprinted in Wood and McLure (1999) vol. 1, pp. 262–68.

de Pietri-Tonelli, A. and Bousquet, G. (1994) *Vilfredo Pareto: Neoclassical Synthesis of Economics and Sociology,* Macmillan, London.

Dobb, M. (1973) *Theories of Value and Distribution since Adam Smith: Ideology and Economic Theory,* Cambridge University Press, Cambridge.

Donzelli, F. (1991) "II 'Metodo degli Equilibri Successivi' di Pareto e il Problema della Dinamica Economica", *Pareto Oggi,* ed. G.Busino, il Mulino, Bologna, pp. 53–65.

——(1997) "Pareto's Mechanical Dream", *Università degli Studi di Milano, Dipartmento di Economia Politica e Aziendale, Working Paper no. 97.07,* pp. 1–54, reproduced in *History of Economic Ideas* (1997) vol. 3, pp. 127–77.

Dooley, P.C. (1983) "Slutsky's Equation is Pareto's Solution", *History of Political Economy,* vol. 15, no. 4, pp. 513–17.

Edgeworth, F.Y. (1926) "Pareto's Law", *Palgrave's Dictionary of Political Economy, Vol III,* ed. H.Higgins, Macmillan, London, pp. 712–13, reprinted in Wood and McLure (1999) vol. 4, pp. 15–17.

Fasiani, M. (1949) "Contributi di Pareto alla Scienza delle Finanze", *Vilfredo Pareto: L'economista e il Sociologo,* Università Commerciale "Luigi Boconi", Casa Editrice Rodolfo Malfasi, Milano, pp. 263–307.

Faucci, R. (1997) "Forward", *History of Economic Ideas,* vol. 3, pp. 1–6.

Federici, C. (1999) "Pareto e i Mechanismi Sociale: L'Approccio metodologico-scientifico nella sua Sociologia", *Revue Européenne des Sciences Sociales,* vol. 37, no. 16, pp. 209–22.

Femia, J. (1995) "Pareto's Concept of Demagogic Plutocracy", *Government and Opposition,* vol. 30, no. 3, pp. 370–92, reprinted in Wood and McLure (1999) vol. 3, pp. 286–306.

Finer, S.E. (ed.) (1966) *Vilfredo Pareto: Sociological Writings,* Pall Mall, London.

——(1968) "Pareto and Pluto-democracy: The Retreat to Galapagos", *American Political Science Review,* vol. 62, pp. 440–50, reprinted in Wood and McLure (1999) vol. 3, pp. 62–79.

——(1975) "Patrons, Clients, and the State in the Work of Pareto and the Present Day", *Convegno Internazionale Vilfredo Pareto (Roma25–27 Ottobre 1973),* Atti dei Convegni Lincie 9, Accademia Nazionale Dei Lincei, Rome, pp. 165–86.

Fiorot, D. (1994) "I Problemi del Metodo di Pareto", in *La Ragione e i Sentimenti: Vilfredo Pareto e la Sociologia,* ed. E.Rutigliano, FrancoAngeli, Milano, pp. 41–77.

Freund, J. (1976) *Pareto: La Teoria dell'Equilibrio,* Editori Laterza, Roma.

——(1994) "La Nozione di 'Utilità' in Vilfredo Pareto", in *La Ragione e i sentimenti: Vilfredo Pareto e la Sociologia,* ed. E. Rutigliano, FrancoAngeli, Milano, pp. 15–39.

Gattei, G. and A.Guerraggio (1991) "Esistenza e Unicità dell'Equilibrio (e altre cose): le Intuizioni Anticipatrice di Gaetano Scorza, Critico di Pareto (1902–1903)", in *Pareto Oggi,* ed. G.Busino, il Mulino, Bologna, pp. 79–105.

Georgescu-Roegen, N. (1935) "Note on a Proposition of Pareto", *Quarterly Journal of Economics,* vol. 49, pp. 706–14, reprinted in Wood and McLure (1999) vol. 2, pp. 136–43.

——(1975) "Vilfredo Pareto and His Theory of Ophelimity", *Convegno Internazionale Vilfredo Pareto (Roma 25–27 Ottobre 1973),* Atti dei Convegni Lincie 9, Accademia Nazionale Dei Lincei, Rome, pp. 223–65, reprinted in Wood and McLure (1999) vol. 1, pp. 474–519.

Gross, M.E. (1995) "Models of Man: Pareto's Contribution", Ph.D. thesis, Department of Economics, University of North Carolina, Chapel Hill NC.

Gross, M.E. and Tarascio, V.J. (1998) "Pareto's Theory of Choice", *History of Political Economy,* vol. 30, no. 2, summer, pp. 171–87.

Hamlin, A.P. (1990) "The Normative Status of Consumer Sovereignty", in *Rationality, Individualism and Public Policy,* eds G.Brennan and C.Walsh, ANUTECH, Canberra, pp. 1–19.

Harsanyi, J. (1955) "Cardinal Welfare, Individualistic Ethics and Interpersonal Comparisions of Utility", *Journal of Political Economy,* vol. 63, pp. 309–31.

Head, J.G. (1990) "On Merit Wants: Reflections on the Evolution, Normative Status and Policy Relevance of a Controversial Public Finance Concept", in *Rationality, Individualism and Public Policy,* eds G.Brennan and C.Walsh, ANUTECH, Canberra, pp. 211–44.

Hicks, J.R. (1932a) "Marginal Productivity and the Principle of Variation", *Economica,* vol. 12, pp. 79–88, reprinted in Wood and McLure (1999) vol. 2, pp. 440–48.

——(1932b) "A Reply", *Economica,* vol. 12, pp. 397–400, reprinted in Wood and McLure (1999) vol. 2, pp. 460–63.

——(1934) "A Reconsideration of the Theory of Value: Part 1", *Economica,* vol. 1, pp. 52–76, reprinted in Wood and McLure (1999) vol. 2, pp. 115–35.

——(1939) "The Foundations of Welfare Economics", *The Economic Journal,* vol. 49, pp. 696–712.

——(1961) "Pareto Revealed", *Economica,* vol. 28, August, pp. 318–22, reprinted in Wood and McLure (1999) vol. 1, pp. 131–35.

——(1975) "Pareto and the Economic Optimum", *Convegno Internazionale Vilfredo Pareto (Roma 25–27 Ottobre 1973),* Atti dei Convegni Lincie 9, Accademia Nazionale Dei Lincei, Rome, pp. 19–28, reprinted in Wood and McLure (1999) vol. 1, pp. 417–27.

Hochman, H. and Rogers, J. (1969) "Pareto Optimal Redistribution", *American Economic Review,* vol. 59, no. 4, part 1, pp. 542–57, reprinted in Wood and McLure (1999) vol. 2, pp. 357–77.

Homans, G. (1986) "Vilfredo Pareto: 'The Transformation of Democracy'", *Journal of the History of the Behavioral Sciences,* vol. 22, July, pp. 294–96, reprinted in Wood and McLure (1999) vol. 3, pp. 248–51.

Homans, G.C. and Curtis, C.P. (1970) [1934] *An Introduction to Pareto: His Sociology,* Howard Fertig, New York.

Houghton, J. and Lopreato, J. (1977) "Towards a Theory of Social Evolution: The Paretian Groundwork", *Revue Européene des Sciences Sociales,* vol. 15, no. 40, pp. 19–38, reprinted in Wood and McLure (1999) vol. 3, pp. 95–114.

Hutchison, T. (1953) *A Review of Economic Doctrines, 1870–1929,* Clarendon Press, Oxford.

Ingrao, B. (1991) "L'analogia Meccanica nel Pensiero di Pareto", in *Pareto Oggi,* ed. G.Busino, il Mulino, Bologna, pp. 67–88.

Ingrao, B. and Isreal, G. (1990) *The Invisible Hand: Economic Equilibrium in the History of Science,* MIT Press, Cambridge MA.

Jaffé, W. (1972) "Pareto Translated: A Review Article", *Journal of Economic Literature,* vol. 10, no. 4, pp. 1190–201.

Kirman, A.P. (1987) "Pareto as an Economist", in *The New Palgrave: A Dictionary of Economics,* eds J.Eatwell, M.Milgate and P.Newman, MacMillan Press, London, vol. III, pp. 804–09.

Lane, J. (1978) "Pareto's English Language Critics: A Reassessment of British and American Interpretations of *A Treatise on General Sociology", Revue Européene des Sciences Sociales,* vol. 16, no. 43, pp. 105–29, reprinted in Wood and McLure (1999) vol. 3, pp. 115–38.

Legris, A. and Ragni, L. (1999) "Recouvrement du Champ de l'Economie dans L'Oeuvre de Vilfredo Pareto: Une Mise en Perspetive du Désaccord avec Léon Walras", *Revue Européenne des Sciences Sociales,* vol. 37, no. 16, pp. 325–46.

Lendjel, E. (1999) "Tâtonnement Walrassien et Marchandage Parétien: Une Approche Comparative", *Revue Européenne des Sciences Sociales,* vol. 37, no. 16, pp. 295–314.

Lombardini, S. (1991) "Pareto e la Scienza Positiva dei Processi Sociali", in *Pareto Oggi,* ed. G.Busino, il Mulino, Bologna, pp. 15–41.

Lopreato, J. (1973) "Notes on the Work of Vilfredo Pareto", *Social Science Quarterly,* vol. 54, no. 3, pp. 451–68, reprinted in Wood and McLure (1999) vol. 1, pp. 328–45.

——(1980) "Pareto's Sociology in a Sociobiological Key", *Revue Européenne des Sciences Sociales,* vol. 18, no. 51, pp. 133–62, reprinted in Wood and McLure (1999) vol. 3, pp. 139–68.

Lopreato, J. and Rusher, S. (1983) "Vilfredo Pareto's Influence on USA Sociology", *Revue Européenne des Sciences Sociales,* vol. 21, no. 65, pp. 69–122, reprinted in Wood and McLure (1999) vol. 3, pp. 187–237.

Macpherson, C.B. (1937) "Pareto's *General Sociology:* The Problem of Method in the Social Sciences", *Canadian Journal of Economics and Political Science,* vol. 3, August 1937, pp. 458–71, reprinted in Wood and McLure (1999) vol. 1, pp. 286–97.

Malandrino, C. and Marchionatti, R. (eds) *Economia, Sociologia e Politica nell' Opera di Vilfredo Pareto (1897–1997): Un dibattito Aperto a Cento Anni della Publicazione del* Cours d'Economie Politique, Fondazione Luigi Einaudi, studi vol. 37, Torino.

Maneschi, A. (1993) "Pareto on International Trade Theory and Policy", *Journal of the History of Economic Thought,* vol. 15, fall, pp. 210–28, reprinted in Wood and McLure (1999) vol. 4, pp. 422–37.

Maniscalco, M.L. (1994) *La Sociologia di Vilfredo Pareto e il Senso della Modernità,* FrancoAngeli, Milano.

——(1999) "Equilibrio e Processi Sociali in Vilfredo Pareto", R*evue Européenne des Sciences Sociales,* vol. 37, no. 16, pp. 223–36.

Marchionatti, R. (1999) "The Methodological Foundations of Pure and Applied Economics: An Anti-Walrasian Program", *Revue Européenne des Sciences Sociales,* vol. 37, no. 16, pp. 277–94.

Marchionatti, R. and Gambino, E. (1997) "Pareto and Political Economy as a Science: Methodological Revolution and Analytical Advances in Economic Theory in the 1890s", *Journal of Political Economy,* vol. 105, no.61, pp. 1322–347.

McLure, M. (1997) *"Rationality Individualism and Public Policy* in the light of Pareto", *History of Economics Review,* vol. 26, winter-summer, pp. 94–108, reprinted in Wood and McLure (1999) vol. 3, pp. 399–417.

——(1999a) "Pareto on the Cause of Value: Maurice Dobb's Partial Assessment", *History of Economics Review,* vol. 30, summer, pp. 56–67.

——(1999b) "Pareto's *Les Systèmes Socialistes* and Buchanan's Constitutive Elements of Economic Policy", in *Vilfredo Pareto: Critical Assessments of Leading Economists,* eds J.C.Wood and M.McLure, Routledge, London, vol. 4, pp. 438–58.

——(2000) "The Pareto-Scorza Polemic on Collective Economic Welfare", *Australian Economic Papers.*

Meisel, J. (ed.) (1965) *Pareto and Mosca,* Prentice-Hall, Englewood Cliffs NJ.

Ménard, C. (1990) "The Lausanne Tradition: Walras and Pareto", *Neoclassical Economic Theory—1870–1930,* eds K.Henning and W.Samuels, Kluwer Academic Publishers, Boston, pp. 95–136, reprinted in Wood and McLure (1999) vol. 1, pp. 520–56, vol. 39, no. 3, pp. 347–71.

Millikan, M. (1936) "Pareto's Sociology", *Econometrica,* vol. 4, December, pp. 324–37, reprinted in Wood and McLure (1999) vol. 3, pp. 3–15.

Mirowski, P. (1989) *More Heat Than Light. Economics as Social Physics: Physics as Nature's Economics ,* Cambridge University Press, Cambridge.

Misaki, K. (1999) "Walras on General Equilibrium in a Progressive Economy", *Revue Européenne des Sciences Sociales,* vol. 37, no. 16, pp. 73–82.

Montesano, A. (1991) "II Massimo di Ophelimità per la Collettività: Defmizioni, Analisi, Interpretazioni di Pareto e Loro Generalizzazione", in *Pareto Oggi,* ed. G.Busino, il Mulino, Bologna, pp. 115–38.

——(1997a) "Pareto's Analysis of Efficiency and its Interpretation", *History of Economic Ideas,* vol. V, no. 3, pp. 1–12.

——(1997b) "Equivalence and Duality Between the Sets of Pareto-Maximal Allocations and the Set of Maximal Distributable Surplus Allocations, Including Externalities", in *Decisions, Games and Markets,* eds P.Battigalli, A.Montesano and F.Panunzi, Kluwer, Boston, pp. 239–63.

Morishima, M. (1994) "Foreword", in *Vilfredo Pareto: Neoclassical Synthesis of Economics and Sociology,* A. de Pietri-Tonelli and G.Bousquet, Macmillan, Houndmills, pp. xi-xxvi.

Mornati, F. (1997a) "La Formazione del Pensiero di Vilfredo Pareto dagli Scritti Giovanili al *Cours d'Economie Politique",* Tesi per il conseguimento del dottorato di ricerca in Storia delle Dottrine Economiche, Università di Firenze.

——(1997b) "The Pure Economics of Pareto before the *Cours d'Economie Politique",* *History of Economic Ideas,* vol. 3, pp. 89–102.

——(1999) "Le début des Différends entre Pareto et Walras", *Revue Européenne des Sciences Sociales,* vol. 37, no. 16, pp. 261–76.

Musgrave, R.A. (1990) "Merit Goods", in *Rationality, Individualism and Public Policy,* eds G.Brennan and C.Walsh, ANUTECH, Canberra, pp. 207–10.

Myrdal, G. (1953) *The Political Element in the Development of Economic Theory,* Routledge and Kegan Paul, London.

Neisser, N. (1940) "A Note on Pareto's Theory of Production", *Econometrica,* vol. 8, pp. 253–62, reprinted in Wood and McLure (1999) vol. 3, pp. 464–72.

Newman, P. (1990) "Francis Ysidro Edgeworth", *The New Palgrave: Utility and Probability,* eds J.Eatwell, M.Milgate and P.Newman, Macmillan, London, pp. 38–69.

Nicola-Zanichelli-SpA (1993) *Nuovo Zingarelli Minore, Vocabolario della Lingua Italiana di Nicola Zingarelli,* Grafica Editoriale, Bologna.

Olson, E.O. (1969) "A Normative Theory of Transfers", *Public Choice,* vol. 6, pp. 30–57.

Palomba, G. (1971) [1896; 1897] "Introduzione", *Corso di economia politica [Cours d'Economie politique],* V.Pareto, Unione Tipographico-Editrice Torinese, Torino, pp. 9–58.

Pantaleoni, M. (1924) "In Occasione della Morte di Pareto: Riflessioni", *Giornale degli Economisti,* vol. LXV, pp. 1–19.

Pareto, V. (1897) "The New Theories of Economics", *The Journal of Political Economy,* September, pp. 485–502.

——(1935) [1916] *The Mind and Society [Trattato di Sociologia Generale],* Harcourt, Brace and Company, New York.

——(1949a) [1896] *Corso di Economia Politica [Cours d'Economie Politique],* vol. I, Giulio Einaudi editore.

——(1949b) [1897] *Corso di Economia Politica [Cours d'Economie Politique],* vol. II, Giulio Einaudi editore.

——(1953a) [1900] "On The Economic Phenomenon: A Reply to Benedetto Croce [Sul Fenomeno Economico]", translated by F.Priuli, *International Economic Papers,* vol. 3, pp. 180–96.

——(1953b) [1900] "On The Economic Principle: A Reply to Benedetto Croce [Sul Principio Economico]", translated by F.Priuli, *International Economic Papers,* vol. 3, pp. 203–7.

——(1955) [1911] "Mathematical Economics [Economic Mathematique]", *International Economic Papers,* vol. 5, pp. 58–102.

——(1960a) *Lettere a Maffeo Pantaleoni 1890–1923, Vol. I,* ed. G.de Rosa, Banca Nazionale del Lavoro, Rome.

——(1960b) *Lettere a Maffeo Pantaleoni 1890–1923 Vol. II,* ed. G.de Rosa, Banca Nazionale del Lavoro, Rome.

——(1960c) *Lettere a Maffeo Pantaleoni 1890–1923 Vol. III,* ed. G.de Rosa, Banca Nazionale del Lavoro, Rome.

——(1971a) [1896–97] *Corso di Economia Politica [Cours d'Economie Politique],* Unione Tipographico-Editrice Torinese, Torino.

——(1971b) [1906] "Ophelimity in Nonclosed Cycles [l'Ofelimità dei Cicli non Chiusi]", in *Preferences, Utility and Demand,* eds J.Chipman, L.Hurwics, M. Richter and H.H.Sonnenschein, Harcourt Brace Jovanovich, New York, pp. 370–85.

——(1971c) [1909] *Manual of Political Economy [Manuel d'Economie Politique],* Augustus M.Kelly Publishers, New York.

——(1974a) [1891] "Lasciate Fare Lasciate Passare", in *Ecrites Politiques—Lo Sviluppo del Capitalismo: 1872–1895 Oeuvres Complètes, Tome XVII,* ed. G.Busino, Librairie Droz, Genève, pp. 443–57.

——(1974b) [1901–02] *I Sistemi Socialisti [Les Systèmes Socialistes],* Torino: Unione Tipografico-Editrice Torinese, Torino.

——(1974c) [1906] *Manuale di Economia Politica con una Introduzione alla Scienza Sociale,* Casa Editrice Dott. Antonio Milani, Padova.
——(1974d) "Ecrites Politiques—Lo Sviluppo del Capitalismo 1872–1895", in *Oeuvres Complètes, Tome XVII,* ed. G.Busino, Librairie Droz, Genève.
——(1974e) "Ecrites Politiques—Reazione, Liberià, Fascismo 1896–1923", in *Oeuvres Complètes, Tome XVIII,* ed. G.Busino, Librairie Droz, Genève.
——(1980a) [1877] "Della Logica delle Nuove Scuole Economiche", in *Oeuvres Complètes, Tome XXII, Ecrites Sociologiques Mineurs,* ed. G.Busino, Librairie Droz, Genève, pp. 79–100
——(1980b) [1894] "Prelazione al Corso d'Economia Politica", in *Oeuvres Complètes, Tome XXII, Ecrites Sociologiques Mineurs,* ed. G.Busino, Librairie Droz, Genève, pp. 101–07.
——(1980c) [1897] "II Compito della Sociologia fra le Scienze Sociali", in *Oeuvres Complètes, Tome XXII, Ecrites Sociologiques Mineurs,* ed. G.Busino, Librairie Droz, Genève, pp. 130–39.
——(1980d) [1899] "I Problemi della Sociologia", in *Oeuvres Complètes, Tome XXII, Ecrites Sociologiques Mineurs,* ed. G.Busino, Librairie Droz, Genève, pp. 165–77.
——(1980e) [1904] "L'lndividuale ed il Sociale", in *Oeuvres Complètes, Tome XXII, Ecrites Sociologiques Mineurs,* ed. G.Busino, Librairie Droz, Genève, pp. 268–76.
——(1980f) [1906] "II Metodo nella Sociologia", in *Oeuvres Complètes, Tome XXII, Ecrites Sociologiques Mineurs,* ed. G.Busino, Librairie Droz, Genève, pp. 279–91.
——(1980g) [1906] "Programma e Sunto di un Corso di Sociologia", in *Oeuvres Complètes, Tome XXII, Ecrites Sociologiques Mineurs,* ed. G.Busino, Librairie Droz, Genève, pp. 292–316.
——(1980h) [1907] "La Questione Religiosa", in *Oeuvres Complètes, Tome XXII, Ecrites Sociologiques Mineurs,* ed. G.Busino, Librairie Droz, Genève, pp. 322–23.
——(1980i) [1907] "L'Economia e La Sociologia del Punto di Vista Scientifico", in *Oeuvres Complètes, Tome XXII, Ecrites Sociologiques Mineurs,* ed. G.Busino, Librairie Droz, Genève, pp. 324–43.
——(1980j) [1910] "Le Azioni Non Logiche", in *Oeuvres Complètes, Tome XXII, Ecrites Sociologiques Mineurs,* ed. G.Busino, Librairie Droz, Genève, pp. 345–408.
——(1980k) [1913] "II Massimo di Utilità per una Collettività in Sociologia", in *Oeuvres Complètes, Tome XXII, Ecrites Sociologiques Mineurs,* ed. G.Busino, Librairie Droz, Genève, pp. 601–05.
——(1980l) [1917] "Discorso per il Giubileo", in *Oeuvres Complètes, Tome XXII, Ecrites Sociologiques Mineurs,* ed. G.Busino, Librairie Droz, Genève, pp. 687–94.
——(1980m) [1920] "Fatti e Teorie", in *Oeuvres Complètes, Tome XXII, Ecrites Sociologiques Mineurs,* ed. G.Busino, Librairie Droz, Genève, pp. 593–915.
——(1982a) [1892–93] "Considerazioni sui Principii Fondamentali dell'Economia Politica Pura", in *Oeuvres Complètes, Tome XXVI, Ecrites d'Economie Politique,* ed. G.Busino, Librairie Droz, Genève, pp. 59–321.
——(1982b) [1894] "Teoria Matematica dei Cambi Forestieri", *Oeuvres Complètes, Tome XXVI, Ecrites d'Economie Politique,* ed. G.Busino, Librairie Droz, Genève, pp. 244–75.
——(1982c) [1894] "II Massimo di Utilità dato dalla Libera Concorrenza", in *Oeuvres Complètes, Tome XXVI, Ecrites d'Economie Politique,* ed. G.Busino, Librairie Droz, Genève, pp. 276–94.

—(1982d) [1895] "La Legge della Domanda", in *Oeuvres Complètes, Tome XXVI, Ecrites d'Economie Politique,* ed. G.Busino, Librairie Droz, Genève, pp. 295–304.
—(1982e) [1900] "Sunto di Alcuni Capitoli di un Nuovo Trattato di Economia Pura del Prof. Pareto, Part 1", in *Oeuvres Complètes, Tome XXVI, Ecrites d'Economie Politique,* ed. G.Busino, Librairie Droz, Genève, pp. 365–84.
—(1982f) [1900] "Sunto di Alcuni Capitoli di un Nuovo Trattato di Economia Pura del Prof. Pareto, Part II", in *Oeuvres Complètes, Tome XXVI, Ecrites d'Economie Politique,* ed. G.Busino, Librairie Droz, Genève, pp. 385–99.
—(1982g) [1900] "Sul Fenomeno Economico", in *Oeuvres Complètes, Tome XXVI, Ecrites d'Economie Politique,* ed. G.Busino, Librairie Droz, Genève, pp. 424–47.
—(1982h) [1900] "Sul Principio Economico", in *Oeuvres Complètes, Tome XXVI, Ecrites d Economic Politique,* ed. G.Busino, Librairie Droz, Genève, pp. 448–55.
—(1982i) [1902] "Di un Nuovo Errore nello Interpretare le Teorie dell'Economia Matematica", in *Oeuvres Complètes, Tome XXVI, Ecrites d Economic Politique,* ed. G.Busino, Librairie Droz, Genève, pp. 488–520.
—(1982J) [1903] "A Proposito del Massimo di Ophelimità", *Oeuvres Complètes, Tome XXVI, Ecrites d Economic Politique,* ed. G.Busino, Librairie Droz, Genève, pp. 521–22.
—(1984) *The Transformation of Democracy [Trasformazione della Democrazia],* Transaction Books, New Brunswick.
—(1988) [1907] "Metafisica Economica", in *Oeuvres Complètes, Tome XXIX, Pages Retrouvées,* ed. G.Busino, Librairie Droz, Genève, pp. 53–56.
—(1988) [1923] "Prefazione, Alle lezioni di Scienza Economia Razionale e Sperimentale, Alfonzo de Pietri-Tonelli", in *Oeuvres Complètes, Tome XXIX, Pages Retrouvées,* ed. G.Busino, Librairie Droz, Genève, pp. 91–92.
–(1989) "Epistolario", in *L'Italia di Vilfredo Pareto: Economia e Società in un Carteggio del 1873–1923 Vol. II,* ed. G.Busino, Banca Commerciale Italiana, Milano.
——(1992) [1913] "The Community's Utility Maximum in Sociology [Il Massimo di Utilità per un Collectività in Sociologia]", in *Italian Economic Papers Vol. 1,* ed. L.Pasinetti, Oxford University Press, Oxford.
Parsons, T. (1968) *The Structure of Social Action, Vol. 1,* The Free Press, New York.
Pepe, L. (1999) "La Formazione Matematica di Vilfredo Pareto", *Revue Européenne des Sciences Sociales,* vol. 37, no. 16, pp. 173–90.
Perry, C.M. (1935) "Pareto's Contribution to Social Science", *International Journal of Ethics,* vol. 46, pp. 96–107, reprinted in Wood and McLure (1999) vol. 1, pp. 275–85.
Pincus, J.J. (1990) "Are Expressions Cheaper in Elections?", in *Rationality, Individualism and Public Policy,* ed. G.Brennan and C.Walsh, ANUTECH, Canberra, pp. 133–36.
Pizzorno, A. (1973) "Vilfredo Pareto and the Crisis in Nineteenth-Century Science", *Social Science Quarterly,* vol. 54, no. 3, pp. 480–90, reprinted in Wood and McLure (1999) vol. 1, pp. 357–68.
Pollini, G. (1999) "The Social System and the Utility of the Collectivity in Vilfredo Pareto", *Revue Européenne des Sciences Sociales,* vol. 37, no. 16, pp. 191–208.
Powers, C. (1984) "Socio Political Determinants of Economic Cycles: Vilfredo Pareto's Final Statement", *Social Science Quarterly,* vol. 65, no. 4, pp. 988–1001, reprinted in Wood and McLure (1999) vol. 4, pp. 408–21.
——(1987) *Vilfredo Pareto,* Sage, Beverly Hills CA.
Rawls, J. (1971) *A Theory of Justice,* Harvard University Press, Cambridge MA.

Ricci, U. (1933) "Pareto and Pure Economics", *Review of Economic Studies,* vol. 1, no. 1, pp. 3–21, reprinted in Wood and McLure (1999) vol. 2, pp. 95–114.

Rutigliano, E. (ed.) (1994) *La Ragione e i Sentimenti: Vilfredo Pareto e la Sociologia,* FrancoAngeli, Milano.

Samuels, W. (1974) *Pareto on Policy,* Elsevier, Amsterdam.

Samuelson, P.A. (1947) *Foundations of Economic Analysis,* Harvard University Press, Cambridge MA.

——(1986) "When is it Ethically Optimal to Allocate Money Income in Stipulated Fractional Shares", in *Collected Scientific Papers of Paul A.Samuelson,* ed. K. Crowley, MIT Press, Cambridge MA, vol. 5, pp. 55–75.

Scapparonne, P. (1997) "The Maximum of Collective Ophelimity in the *Cours d'Economie Politique", History of Economic Ideas,* vol. 3, pp. 35–48.

Schmidt, C. (1999) "Le Concept d' Optimalité Parétienne: à 1'Origine d'un Nouveau Programme de Recherche Social", *Revue Européenne des Sciences Sociales,* vol. 37, no. 16, pp. 347–58.

Schneider, E. (1961) "Vilfredo Pareto: The Economist in the Light of His Letters to Maffeo Pantaleoni", *Banca Nazionale del Lavoro Quarterly Review,* vol. XIV, no. 58, pp. 247–95, reprinted in Wood and McLure (1999) vol. 1, pp. 136–79.

Schultz, H. (1929) "Marginal Productivity and the General Pricing Process", *Journal of Political Economy,* vol. 37, no. 5, pp. 505–51, reprinted in Wood and McLure (1999) vol. 2, pp. 403–39.

——(1932) "Marginal Productivity and the Lausanne School", *Economica,* vol. 12, pp. 285–96, reprinted in Wood and McLure (1999) vol. 2, pp. 449–59.

Schumpeter, J.A. (1949) "Vilfredo Pareto (1848–1923)", *Quarterly Journal of Economics,* vol. 63, May, pp. 147–73, reprinted in Wood and McLure (1999) vol. 1,pp. 106–28.

——(1954) *A History of Economic Analysis,* Oxford University Press, New York.

Scorza, G. (1902a) "Osservazioni sulle Teoria del Baratto Secondo il Prof. Walras", *Giornale degli Economisti,* April, vol. 2, no. 24, pp. 282–302.

——(1902b) "Osservazioni su Alcuni Teorie di Economia Pura", *Giornale degli Economisti,* vol. 2, no. 25, pp. 503–16.

——(1903) "A Proposito del Massimo di Ophelimità dato dalla Libera Concorrenza", *Giornale degli Economisti,* vol. 2, no. 26, pp. 41–62.

Seidl, C. and Schmidt, U. (1997) "Pareto on Intra- and Interpersonal Comparability of Utility", *History of Economic Ideas,* vol. 3, pp. 19–34.

Sen, A. (1982) "Rational Fools: Critique of the Behavioural Foundations of Economic Theory", in *Choice, Welfare and Measurement,* ed. A.Sen, Blackwell, Oxford, pp. 84–106.

Shirras, G.F. (1935) "The Pareto Law and the Distribution of Income", *Economic Journal,* vol. 45, pp. 663–81, reprinted in Wood and McLure (1999) vol. 4, pp. 25–43.

Spirito, U. (1978) *Vilfredo Pareto,* Cadmo Editore, Roma.

Stark, W. (1965) [1963] "In Search of the True Pareto", in *Pareto and Mosca,* ed. J. Meisel, Prentice-Hall, Englewood Cliffs NJ, pp. 45–55.

Swedberg, R. (1990) *Economics and Sociology—Redefining their Boundaries: Conversations with Economists and Sociologists,* Princeton University Press, Princeton NJ.

Tarascio, V.J. (1968) *Pareto's Methodological Approach to Economics,* University of North Carolina Press, Chapel Hill NC.

—(1969) "Paretian Welfare Theory: Some Neglected Aspects", *Journal of Political Economy,* vol. 77, no. 1, January-February, pp. 1–20, reprinted in Wood and McLure (1999) vol. 3, pp. 311–29.

—(1969b) "The Monetary and Employment Theories of Vilfredo Pareto", *History of Political Economy,* vol. 6, no. 4, pp. 361–80, reprinted in M.Blaug (1992) *Pioneers in Economics 35: Vilfredo Pareto (1848–1923),* Edward Elgar, Aldershot, pp. 318–39.

—(1972) "A Correction: On the Geneaology of the So-Called Edgeworth-Bowley Diagram", *Western Economic Journal,* vol. 10, no. 2, pp. 193–97.

—(1972b) "Marx and Pareto on Science and History: A Comparative Analysis", *Keio Economic Studies,* vol. 9, no. 2, pp. 23–35, reprinted in Wood and McLure (1999) vol. 4, pp. 382–94.

—(1973a) "Pareto's Law of Income Distribution", *Social Science Quarterly,* vol. 54, no. 3, pp. 525–33, reprinted in Wood and McLure (1999) vol. 1, pp. 406–16.

—(1973b) "Vilfredo Pareto and Marginalism", in *The Marginal Revolution in Economics: Interpretation and Evaluation,* eds R.D.Collison Black, A.W.Coats and D.G.W Goodwin, Duke University Press, Durham NC, pp. 140–59, reprinted in Wood and McLure (1999) vol. 1, pp. 311–27.

—(1974) "Pareto on Political Economy", *History of Political Economy,* vol. 6, no. 4, pp. 361–80, reprinted in Wood and McLure (1999) vol. 3, pp. 330–47.

—(1976) "Pareto: A View of the Present Through the Past", *Journal of Political Economy,* vol. 84, no. 1, pp. 109–22, reprinted in M.Blaug (1992) *Pioneers in Economics 35: Vilfredo Pareto (1848–1923),* Edward Elgar, Aldershot, pp. 360–73.

—(1983) "Pareto's *Trattato", Eastern Economic Journal,* vol. 9, no. 2, pp. 119–31, reprinted in Wood and McLure (1999) vol. 3, pp. 358–75.

—(1993) "Pareto's Sociological Model of Man", *History of Economics Review,* vol. 19, pp. 49–54, reprinted in Wood and McLure (1999) vol. 3, pp. 376–83.

—(1999) "The Problem of Scope: Walras and Pareto", *Revue Européenne des Sciences Sociales,* vol. 37, no. 16, pp. 295–314.

Taylor, C. (1990) "Irreducibly Social Goods", *Rationality, Individualism and Public Policy,* eds G.Brennan and C.Walsh, ANUTECH, Canberra, pp. 45–63.

Università Commerciale "Luigi Boconi" (ed.) (1949) *Vilfredo Pareto: L'Economista e il Sociologo,* Casa Editrice Rodolfo Malfasi, Milan.

Volterra, V (1971) [1906] "Mathematical Economics and Professor Pareto's New Manual [L'Economia Matematica ed il Nuovo Manuale di Prof. Pareto]", in *Preferences Utility and Demand,* eds J.Chipman, L.Hurwics, M.Richter and H.H. Sonnenschein, Harcourt Brace Jovanovich, New York, pp. 365–69.

Walras, L. (1954) *Elements of Pure Economics,* George Allen and Unwin, London.

Walsh, C. (1990) "Individual Irrationality and Public Policy: In Search of Merit/Demerit Policies", in *Rationality, Individualism and Public Policy,* eds G.Brennan and C.Walsh, ANUTECH, Canberra, pp. 145–77.

The *West Australian* (1998) *Prince Hammers on Democracy's Door,* 2 June, Perth, p. 9.

Wilson, E.B. (1935) "Generalisation of Pareto's Demand Theorem", *Quarterly Journal of Economics,* vol. 49, pp. 715–17, reprinted in Wood and McLure (1999) vol. 2, pp. 144–46.

——(1939) "Pareto Versus Marshall", *Quarterly Journal of Economics,* vol. 53, pp. 645–50, reprinted in Wood and McLure (1999) vol. 2, pp. 147–51.

——(1943) "Pareto on Marshall's Demand Curve", *Quarterly Journal of Economics,* vol. 58, pp. 141–45, reprinted in Wood and McLure (1999) vol. 2, pp. 152–56.

Wood, J.C. and McLure, M. (eds) (1999) *Vilfredo Pareto: Critical Assessments of Leading Economists,* 4 vols, Routledge, London.

Zanni, A. (1999) "Pareto in Tuscany: Discontinuity and Premonitory Signs of an Economist and Sociologist", *Revue Européenne des Sciences Sociales,* vol. 37, no. 16, pp. 119–40.

Zeitlin, I.M. (1968) *Ideology and the Development of Sociological Theory,* Prentice-Hall, Englewood Cliffs NJ.

Index