

Preface

This book is about green accounting. Green accounting seeks to adjust the national income estimates to reflect ecological deterioration to the extent these accounts will allow. But it is also about macroeconomics since the national accounts and macroeconomics are intertwined. Hicks traces the birth of macroeconomics back to Cromwell's invasion of Ireland in the 1650s when William Petty, a precursor of national accounting, was tasked with making an estimate of the 'Irish estate' gained as a war booty. Not too long later, the classical economists from Adam Smith onwards, and perhaps taking their cue from the French school of the Physiocrats, approached the study of economics from the macroeconomic end, focusing on the national aggregate of the wealth (meaning income) which figured in the title of Adam Smith's book: *The Wealth of Nations*. But the focus of economics (or shall we say political economy) on macroeconomics was diluted in the course of the nineteenth century. The prevailing *laissez-faire* thinking and practices were not exactly conducive to counting national aggregates, and attention shifted for quite a while to analysis of individual commodity markets with a concentration on value theory which was conveniently analysed by the microeconomic apparatus of supply and demand. It was not until the beginning of the twentieth century, however, that we note stirrings back to the classical perspective. Sporadic estimates of national income began to be made in the United Kingdom with the availability of data including tax returns. But the real jump in the history of national accounting came with World War II in order to mobilize national resources for the war effort and allocate them to serve this vital purpose. In the United States the same drive came a little later, also associated with the war. The impetus to green the national accounts came later still and this is the main theme that will be investigated in detail in the following chapters.

In this book I challenge the veracity of the magnitudes produced by the national accounts, even those compiled after the major overhaul of the United Nations System that came out in 1993, to which I shall be referring as SNA93. The challenge will not affect all economies – not to the same degree anyway – but will relate especially to those poorer economies where primary production forms a significant portion of their industrial

structure. Primary production comprises activities rooted in Nature and cover mining, agriculture, fishing, forestry and similar economic pursuits. The aggregate estimates produced in the national accounts provide the prime material the macroeconomists use for monitoring economic change, analysing its nature and causes, and for making economic policy prescriptions. These magnitudes include GDP and GNP, and their net parallels NDP and NNP, and also cover components within them such as consumption, saving and investment. A major claim I shall be pressing is that natural resources are part of a nation's economic capital, and their deterioration represents an economic loss that should be captured unambiguously in the national accounts to the extent the accounts would permit, and should thus be forced on the attention of economists. To view ecological or environmental deterioration as biological and physical losses – while certainly true – without appreciating the *economic* significance of that loss, is worse than a crime: it is a mistake!¹ In what follows I shall be using 'ecology' and 'environment' interchangeably, stressing the fact that the environment is unquestionably part of a society's capital in the full sense of capital as used in economic analysis. Natural capital adds to the contribution other factors make to output and withdrawing it in whole or in part will lessen the product. One important aspect of this argument is that, similarly to other forms of capital, it should be maintained, and its maintenance must be seen as a prerequisite for the proper estimation of national income.

Whilst the ecological aspect of natural resource deterioration receives ample recognition from the environmentalists, it is their economic role that is curiously overlooked by the economists – or at least by a majority of them. And it is the attention of these I shall be trying to attract. When the System of National Accounts came up for a major update in 1993 the new version – SNA93 – treated the environment decidedly as non-economic, devoid of any economic quality or even relevance. To its authors the environment was merely an ecological entity meriting no place in the central 'economic' accounts. With the obvious economic relevance of natural resources, as will be elaborated throughout the next chapters, I shall be curious to find out by the end if readers will judge SNA93 justified in reserving the quality of 'economic' to the traditional estimates of GDP, while denying the same quality to ecological changes. Questioned also will be the place where these amendments to the accounts should be made: should they be in the 'mainframe' of the SNA, or banished out of sight into the newly created set of 'satellite accounts'?

Simultaneously with the release of SNA93, the United Nations Statistics Department issued a guide for the compilation of the Satellite Accounts. This guide came out as expected in the series of 'Studies in Method',

bearing the title, *Integrated Environmental and Economic Accounting: An Operational Manual*. Significantly it was stamped by UNSD as 'An Interim Version' in recognition of the fact that controversy was still raging on account-adjustment methods, and in the expectation that a definitive version would later emerge. Subsequent updating of SNA93, and a number of attempts to firm up the Manual that would allegedly *integrate* (or re-integrate?) what is 'economic' with what is 'environmental' have failed. This has occurred despite heroic efforts led by UNSD and the consultants it recruited for the task. Two decades after initiating this Manual in 1993 it has not been finalized to everyone's satisfaction, and the Satellite Accounts still lack a standard format, and even their very purpose has not been clarified. Where they have actually been compiled, and many statistical offices throughout the world have striven to compile them, they seem to have emerged merely as a repository of relevant information, related in some fashion to the environment – doubtless potentially useful for research, but lacking a format conducive to the genuine integration intended. Importantly macroeconomic work continues to be based on the unadjusted accounts, which, for many developing countries dependent on primary production, do not accord with the reality of their situation.

I must stress that this book is in large part built upon a number of earlier essays dealing with environmental economics. These have now been updated, touched up, and complemented with other unpublished papers and with further thoughts relating to the interactions between the environment and macroeconomics. While the book naturally supports what has come to be known in some circles as the 'El Serafy Method', it takes up many other related topics while keeping as close as possible to current national income accounting practices. Significantly it very largely eschews an aspect of green accounting that has garnered amazing popularity in the ecological economics literature, namely the welfare implications of greening the accounts. Though certain aspects of welfare will receive critical coverage in this book it will not be pursued in any substance since I view welfare as irrelevant to the approach I am taking. National income is not meant to signify happiness – a view which the account estimators themselves have strongly emphasized. They stress that they are estimating output and its counterpart, income, and certainly not the state of mind that output may impart to the income recipients.

One cannot deny that associating output with welfare – an association that may be traced back at least to Pigou – has given rise to some impressive contributions recently made that have enlivened the discussion of greening the national accounts, and these will be touched upon later. What I shall be concerned particularly with is to rebut contributions coming interestingly from economic theorists who have rushed in to deploy heavy

mathematical artillery to introduce what they believe as relevant inputs to national account reform. Most of these attempts it will be seen focus on 'welfare' which as I just said is a different topic. Welfare economics has of course been central to neoclassical economics for a whole century, and has gone through many phases of development as is well known. In one phase it dwelt in great length on cardinal and ordinal utility for welfare comparisons, and for interpreting the national dividend and its changes. In another phase it has led to the practical apparatus of cost-benefit analysis – a technique favored for project appraisal by many development agencies. My own position, I must declare at the outset, is that we may derive welfare from output to our hearts' content, provided that we get better readings of output first. Any derivation of welfare from output must wait until output has been properly estimated. And second, this should be done totally outside the SNA. The output estimates produced by the national accounts are clearly not sufficient to enable welfare judgments based on them. The estimates need to be supported by additional information that is not usually available to the national accountants, including the number of the income recipients, how income is distributed among them, their age and gender structures, and how they spread along the range of the income distribution. Armed with such information welfare questions may be pursued fruitfully but decidedly outside the SNA.

It will be seen that the method I am trying to propagate and which dominates what I am going to say in the following chapters began as a device I forged in the 1970s for estimating *income* out of the revenues obtained from the commercial exploitation of depletable natural resources, initially petroleum. I shall be showing that the user-cost method has since then proved to be quite versatile in that it has been successfully applied also to renewable resources when these are insufficiently replenished or not replenished at all. Successful applications of my method have been made for other minerals, forestry, soil, fisheries, and fossil water among other natural resources. Failure to renew renewable resources amounts in effect to 'mining' them so they become depletable. This method has had its supporters and detractors. The supporters, I like to think, have made the necessary effort to understand it properly, and the detractors in my view often failed to comprehend it or appreciate the assumptions upon which it is based. In my opinion opponents, often with good intentions, have played no small part in delaying a satisfactory greening of the national accounts along the lines I have been proposing. In this book I try to summarize their 'misunderstandings' in two chapters, citing instances of criticism I have come across, but clearly there are many more that I have not encountered. I am inclined to pose the question as to whether these detractors should not bear their share of responsibility for obstructing the progress of green

accounting. But this is perhaps a question too early to pose at this stage, and should receive an answer by book end.

I now turn to the organization of the book in an attempt to show how I intend to proceed. I shall not elaborate here on the chapter contents, but sketch them only in outline. It is my intention to divide the presentation in six parts. Part I introduces the subject spread over three brief chapters. I begin by stressing the economic angle which defines my entire approach, followed by a brief historical account of how I got involved in green accounting in the first place, then I describe from my perspective how SNA93 came about, and end with a previously published essay on why the environment constitutes part of a nation's Capital. I had planned to include in this part my essay on 'the economic rationale for green accounting' (El Serafy 2006: Chapter 3 in Philip Lawn, ed., *Sustainable Development Indicators in Ecological Economics*, Edward Elgar, Cheltenham), which would give a bird's eye view of this book, but decided to exclude it to avoid repetition.

Part II consists of five chapters, the first of which examines the fundamental concepts of Income and Capital in relation to Nature's accounts, followed by two chapters, successively on Marshall's distinction between rent and royalty, then another on Hicksian income, concluding by an examination of the concept of income, properly defined, in application to mineral extraction. Part II finishes off with an example of a policy issue, namely adjusting investment downward, consequent upon greening the accounts.

Part III focuses on the user-cost approach to greening the accounts. It contains two chapters dealing with its rationale, and how to estimate it, examining the criticism levelled against it which I label 'Misunderstandings', and finally focus on one particular critic who had made a detailed study of my 'Contribution' to this issue.

Four chapters make up Part IV where I examine in detail certain methodological matters or rather 'instruments' associated with a user-cost approach, namely (1) treating declines of resource stocks in commercial exploitation as withdrawals from Nature's store and stressing the inappropriateness of likening these withdrawals to capital consumption; (2) outlining my views on Sustainability and the related topic of substitutability i.e. between natural and human-made inputs in production; and (3) that contrary to general perception, greening the accounts will not necessarily lead to a lower growth rate. Then I devote a short chapter to the demographic pressure on natural resources.

Part V gathers together important policy matters that need to be re-examined once the accounts have been greened. One chapter contains what in effect was a 'sermon' I addressed to fellow World Bank economists

directing their attention to the natural resource foundations on which are based the macroeconomic estimates they use and mechanically project. The second chapter explores further green accounting and economic policy. A third chapter explodes the myth of the natural resource curse. A fourth brings in the case of Indonesia, which has been the field of a pioneering study on green accounting. And a fifth provides a short account of sovereign funds established in many cases to receive the proceeds of natural resource liquidation.

Finally Part VI, made up of a single chapter I call 'An afterword', tries to sum up the book's main messages.

NOTE

1. I am alluding here to the French adage that a mistake can be worse than a crime – a saying attributed to many people, but notably to Napoleon's Chief of Police, Joseph Fouché who apparently had said: '*C'est pire qu'un crime, c'est une faute!*'