Reflections on the Classical Canon in Economics

Essays in honor of Samuel Hollander

**Edited by Evelyn L. Forget
and Sandra Peart**

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London and New York

Reflections on the Classical Canon in Economics

In this discipline-defining volume, some of the leading international scholars in the history of economic thought re-examine the concepts of classical economics and the canon, illuminating the roots of the contemporary discipline, and the shape and form of its evolution.

The investigation addresses three related issues. First, the contributors attempt to determine which ideas are vital to classical economics, and whether these ideas distinguish classical economics from other approaches to economic questions. Second, the essays address the development of classical economics over time through sociological and intellectual processes, and attempt to determine why some writers and works are elevated to the canon, while others are not. Third, some contributors examine the intellectual consequences of this inevitable process of canonization.

The book includes examinations of the work of major economists such as Smith, Bentham, Malthus, Ricardo, Mill, Marx and Keynes. Offering new perspectives on the way an intellectual discipline is constructed, this book will be of essential interest to all scholars of the history of economic thought.

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This volume includes some of the papers presented at a conference designed to celebrate the career of Samuel Hollander on the occasion of his retirement as University Professor from the Department of Economics at the University of Toronto. We attach, as an appendix, Paul Samuelson's tribute to Samuel Hollander, and Samuel Hollander's response.

The pride and affection of Samuel Hollander's children, Isaac and Frances, characterize their words, which are also appended.

On behalf of all those students who have gained much from the masterful knowledge and very hard criticism of Samuel Hollander, we would like to offer our gratitude and affection.

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Acknowledgements

1 Introduction

Evelyn L. Forget and Sandra Peart

We have chosen the "classical canon" as the theme of these essays, in order to organize our attempts to reclaim a group of writers – writers we refer to as "classical economists" – as vital components of the heritage of contemporary economics. If this reclamation is to be meaningful, rather than empty rhetoric, it requires an ongoing attempt to understand the ideas developed by classical economists, including those ideas upon which they agreed, the context in which the ideas were developed, and their points of dispute. Our purpose is not, therefore, to create exclusive definitions, or to encourage economists or historians of economic thought to embark on the "canon wars" that have infected other disciplines.

Strong feelings, however, are aroused by the notion of a "canon." The very definition is ambiguous, and disputes are generated by questions pertaining to the formation and evolution of a "canon." Therefore, we begin by setting out our definition. By "canon," we mean that essential set of ideas that characterizes an intellectual field, and that we can legitimately attribute to an identifiable group of writings. The "classical canon," we contend, consists of those ideas which are the defining characteristics of an approach to economics by the "classical economists," and which distinguish these works from others. Not surprisingly, given the ambiguity surrounding the notion of the "canon," these definitions beg a number of questions, some of which are addressed in the chapters that follow. What are the defining ideas of classical economics? How many of them must be shared by a work or an author to merit the label "classical"? Why are some works that share these ideas designated important, while others are not? Are these ideas exclusive to classical economics, or are they shared by later writers and writers from other traditions?

We address three related issues in this book. First, most of our contributors attempt to determine which ideas and concepts are vital to classical economics, and whether these ideas distinguish classical economics from other approaches to economic questions. That is, is there a relatively distinct group of ideas that characterize classical economics, and can we find a group of writers and works that embody these ideas? Second, we recognize that the canon is not a static concept, but is developed over time through sociological and intellectual processes that are not well understood. The story of classical economics emerges and is debated and honed through a process of canonization. Some of the chapters in this volume attempt to understand that

process, and to determine why some writers and works are elevated to the canon, while others are not. David Levy takes this process one step further, by trying to understand how mistakes – ideas erroneously attributed to a writer – become embedded in the canonical representation of his work. Third, some of the chapters examine the consequences of the inevitable process of canonization. The creation of a canon not only creates canonical works, it also creates heretical works and ignored works. Who gets left out? Who gets ignored? Who founds or contributes to heterodox approaches?

This choice of theme is almost predetermined by the scope of Samuel Hollander's work. He has written massive treatises on every one of the major classical economists: *The Economics of Adam Smith* (1973), *The Economics of David Ricardo* (1979), *The Economics of John Stuart Mill* (1985), and *The Economics of Thomas Robert Malthus* (1997b). His textbook, *Classical Economics* (1987), and his collections of essays, *Ricardo – The New View* (1997a), *The Literature of Political Economy* (1998) and *John Stuart Mill on Economic Theory and Method* (2000) supplement a large number of journal articles. The underlying theme of all his work is the attempt to address our questions. Is it legitimate to speak of "classical economics" as though there were a shared core of ideas that distinguish these writers from others? What are the defining features of the economics of these classical writers, are these features universal to classical writers, and to what extent are they shared by later economists? In the process of answering these questions, he has developed a narrative of the development of economic thought that has occasioned significant interest and a good deal of controversy. If the ideas of classical writers are alive as long as we debate the content and significance of their writing, then Samuel Hollander certainly shares responsibility for their longevity. It seems appropriate, therefore, in a volume honoring Samuel Hollander, to ask ourselves what we mean by classical economics.

This exercise has reminded us vividly of the power that narrative wields in scientific discourse. Paul Samuelson's "On the Canonical Classical Model of Political Economy" (1978) is the most well known attempt to create a simplified narrative of classical economics. He attributes to Smith, Malthus, Ricardo and Mill a growth model incorporating a number of features: a population growth mechanism driven by real wages, a capital accumulation mechanism that ultimately results in a falling rate of profit, a secular growth path that culminates in a stationary state characterized by a socially-determined level of subsistence wages, zero population growth, no net capital accumulation and a zero rate of profit. When land scarcity is added to Marx's scheme, he ends up with the same model. Differences between writers are de-emphasized, and common features emphasized. The result is a simple and coherent story.

Samuel Hollander's essay "'Classical Economics': a reification wrapped in an anachronism?" takes pride of place in this collection, because in it he articulates those ideas he has developed over his career. He develops the analysis by outlining the characteristic features of a "representative" classical economist: a growth theory based upon land scarcity, an adherence to the inverse wage–profit relationship, a pricing model that integrates short and long-run considerations, and an analytical appreciation of a weak version of Say's law. Then he considers the degree to which particular classical writers adhered to

this representative analysis, and the extent to which policy considerations reveal the model.

Hollander's narrative is clear: at the core of classical economics, he argues, is a market analysis based upon self-interest and contract. Like those writers who followed them and built upon their ideas, the great classical writers, Adam Smith, David Ricardo, T. R. Malthus and J. S. Mill, all recognized the centrality of price determination based upon demand and supply, or scarcity. All recognized, to a greater or lesser extent, the roles of price elasticity of demand and supply, and distinguished between short and long-run market adjustments. Hollander recognizes the importance of a shared growth model, as did Samuelson, although he attributes more significance to the differences between writers, and particularly the attenuation of Smith's recognition of land scarcity, than did Samuelson. Hollander claims that there is, nonetheless, a core of ideas that characterize classical economics. These ideas are shared, to a greater or lesser extent, by all those writers we generally label classical economists, and by Marx. Moreover, the centrality of microeconomic ideas of price determination in classical economics implies that later writers developed the ideas of classical writers. That is, the development of economics from the time of Adam Smith to the present is a story of continuity or, perhaps, development within a broader field of shared ideas.

This story is not one universally acclaimed by our contributors, although it is considered important by all of them. Anthony Waterman develops the idea, implicit in Hollander's work, that there is a fundamental schism in the development of political economy occurring around 1804. Adam Smith falls on one side of the divide, and Ricardo, Malthus and J. S. Mill on the other. The key difference between the two approaches, he argues, is the explicit recognition by the later classical writers of the implications of scarce land and natural resources for the "canonical" growth model. Nathalie Sigot examines Jeremy Bentham's writing to determine whether he can justly be considered a "classical" economist. Anthony Endres agrees that Samuelson's "canonical classical model" may be a more valid representation of Ricardo's ideas than of Smith's, but nonetheless asks to what extent that model can be made to reflect Smith's concerns. He relaxes the assumption of the given, stable institutional "state of nature" upon which Samuelson's model is constructed, specifically by considering the implications of imperfect capital markets. Masazumi Wakatabe relaxes another of the assumptions of Samuelson's canonical classical model, and asks whether the assumption of a given state of knowledge can legitimately be attributed to classical writers, and what the implications would be of recognizing the impact of learning on productivity.

Richard Kleer attempts to place *The Wealth of Nations* in an appropriate intellectual context, to "consider the conference theme at one remove: the canon not of key works in the history of economic thought, but of contemporary writings considered relevant for interpreting *The Wealth of Nations*." He argues that intellectual history would benefit from an attempt to understand the full range and depth of intellectual and policy issues to which authors were responding, rather than limiting our attention to those influences that we, with the hindsight of time, have determined to be of lasting significance. Rather than seeking a single "source" for ideas that, over time,

have been labeled important, he challenges us to attempt to recreate the intellectual environment in which their ideas took shape.

Jeffrey Young and Ingrid Peters-Fransen both address the relationship between *The Theory of Moral Sentiments* and *The Wealth of Nations.* Young argues that economists have been badly served by the "canonical" Smith that emerges from our history of economic thought textbooks that focus on *The Wealth of Nations.* The purpose of *The Wealth of Nations*, Young argues, was to place economic science within the science of jurisprudence. Peters-Fransen presents a review of the vast literature on what is termed the "Adam Smith problem," that is, how are we to understand the relationship between Smith's two great books?

Walter Eltis and Richard Arena both address the question of whether there were distinct French and English traditions, and arrive at somewhat different answers for slightly different periods. Eltis argues that five key aspects of classical economics, first synthesized in *The Wealth of Nations*, were developed initially in France and communicated to Smith by the physiocratic writers with whom he made contact during his European tour. These central ideas are the importance of competition and free markets in a system that protects property rights, the notion that surplus is generated only by "productive" industries, that economic growth depends upon the reinvestment of that surplus, that there is a population mechanism that links growth to real wages, and that market prices will converge upon prices of production. That is, Eltis argues that there is continuity between the physiocratic writers and Adam Smith.

Richard Arena, examining a slightly later period, recognizes that nineteenth-century French liberal economists, beginning with Jean-Baptiste Say, developed an analysis quite distinct from that of the British classical school. The French preoccupation with a value theory based upon utility and with the role of the entrepreneur is well known. Arena points, however, to a further distinction of French liberal thought. Economic agents, according to Arena, are not treated as autonomous decision-making units driven solely by their own self-interest, but rather as socialized human beings embedded in society. He sees this difference as fundamental, and responsible for the persistence of a distinct French liberal school throughout the nineteenth century. In Arena's view, the shared regard for the market mechanism, which Eltis documents, is not sufficient to unite the two approaches.

It is with David Ricardo that the greatest controversy about the content of classical economics emerges. Did David Ricardo share the same model of price determination as Adam Smith and J. S. Mill, or was the relationship between market prices and prices of production fundamentally different in Ricardo's work? William Baumol contributes a fascinating chapter in which he questions the attribution to Marx and to Ricardo of any particular concern with the determination of the prices of individual commodities. Both, he claims, were addressing much larger questions. Pier Luigi Porta examines the significance of Piero Sraffa's magnificent edition of Ricardo's *Works and Correspondence*, the introduction (1951) of which led to a reading of David Ricardo quite different from that of Samuel Hollander.

André Lapidus and Nathalie Sigot reconsider the debate over the nature of Ricardian economics that raged during the 1970s, largely in response to

Hollander's work on Ricardo. Laurence Moss builds upon Samuel Hollander's reconstruction of Ricardo in order to uncover the significance of the inverse wage–profit relationship. That significance extends beyond the simple meaning of the inverse relationship. Instead, Moss locates the moment when "economic orthodoxy came of age" in the development of the wage–profit theorem.

Timothy Davis turns to Ricardo's macroeconomics, and considers the extent to which Say's Law characterized Ricardo's writing. He contends that, contrary to Keynes's assertion, Ricardo's analysis was more consistent with empirical evidence and more logically cogent than Malthus's argument. Ghislain Deleplace re-examines Ricardo's use of the quantity theory of money, and considers to what extent a heterodox component might be found in his writing. Thomas K. Rymes deconstructs Keynes's interpretation of Malthus in the light of Samuel Hollander's magisterial *The Economics of Thomas Robert Malthus.* He argues that the central assumptions of classical economics are the fixity of knowledge and natural agents (land), and considers the implications of relaxing the assumption of fixed knowledge. Rymes considers Keynes's true break with classical economics to be his introduction of uncertainty into the analysis, and concludes that Keynes's theory of effective demand is not present in Malthus, despite Keynes's claim to the contrary.

Sandra Peart turns her attention to a point of particular controversy, and examines the changes that took place in the classical canon between J. S. Mill and W. S. Jevons. She documents a narrowing of the boundaries of economic science attributable to Jevons's response to methodological challenges from the historical school. Jevons defended the substantially deductive method of Mill and called for increased subdivision within economics along the lines of subject matter and method. The consequence, she argues, is that theory, now believed to be universally applicable and invariant with respect to time and space, would be privileged over application and unwittingly insulated from challenges based on contrary evidence.

The last series of chapters examines the idea of canonicity more broadly, and reminds us of the essential ambiguity of the concept. Alessandro Roncaglia, Samuel Hollander's "best enemy," looks specifically at the debate over classical value theory, and asks to what extent Samuelson's canonical model is an adequate representation of classical economics.[1] He concludes that the idea of a canon is an interesting concept for historians of economic thought, but that it is essentially an ambiguous concept. In particular, he claims that it is possible to construct a "canonical" model that, unlike the narratives told by Samuelson and Hollander, demonstrates a sharp discontinuity between classical and marginalist approaches to economic theory. John Whitaker examines the use of "precursors" in economic debate, examining the various ways in which they are called upon by individual authors, by competing schools of thought, and by historians and methodologists of economics.

David Levy's essay considers the historical context in which the classical economists came to be considered "reactionaries." We became, he argues, the "dismal science" not, (as is still too commonly presumed) because of the assumption of fixed wages, but rather because of the role played by the classical economists in the abolition of slavery. Carlyle was the great defender of slavery,

and the opposition he received from Harriet Martineau, J. S. Mill and others led him to apply the derogatory epithet to economics.

Robert Dimand develops the theme that the history of economic thought as the history of "great men" inevitably relegates many individuals to marginal status. This, he argues, accounts for the dearth of women in the canon. Women, he claims, are under-represented even when considered relative to their numbers in the population of contributing economists. Recovering the contributions of women economists will enrich the canon by reintroducing those themes that disproportionately attracted the attention of women economists, as well as by causing us to consider the role played by all past economists.

Finally, Warren Samuels examines canonical works and canonical interpretation in economics, and then considers the economics canon in a manner parallel to the general cultural or literary canon. How and why are certain ideas and certain works elevated to canonical status? How and why are some individuals remembered and associated with particular ideas, while others are forgotten?

Note

1 Roncaglia and Hollander, in the tradition of Malthus and Ricardo, have maintained a cordial and energetic debate about the reading of Ricardo for some two decades.

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2 "Classical economics"

A reification wrapped in an anachronism?

Samuel Hollander

Introduction

Classical economics is the economics to be found in Adam Smith's *The Wealth of Nations* ([first edition 1776] 1937), David Ricardo's *Principles of Political Economy* ([1817] 1951–73), Thomas Robert Malthus's *Principles* ([1820]) – and of course his *Essay on Population* ([1798]), and John Stuart Mill's *Principles of Political Economy* ([1848] 1965). Alternatively expressed, classical economics is orthodox British economics written during the century 1770 to 1870. Explicitly or implicitly, dozens of textbooks define "classical economics" in just this way, my own included. Of course I am being facetious. Though for some purposes I would wish to retain the brief "dictionary" sense of "classicism," to leave the matter there is to say everything and to say nothing. To extract a common core of doctrine from the massive tomes by Smith, Ricardo, Malthus and Mill proves in fact horrendously complex, a feature that might account for the intensity of the controversy engendered by some of my researches into the classics.

Let me start with a specific charge leveled against me a decade ago, that for some 2,200 pages I had been

> exploiting the term "classical" beyond acceptable limits, by reifying "Classical Political Economy", as though with its "classical method", and classical theories, it has some solid, independent existence apart from the variegated writings of an imprecisely defined group of writers. This reification is then wrapped in anachronism by attributing to "Classical Political Economy" ideas and definitions that were only formulated and widely used, much later, in the twentieth century.
>
> (Hutchison 1987: 121)

Those complaints appeared in a review of my book on *Mill*. I have since compounded the transgressions – if transgressions they are – by adding my *Malthus*, *Classical Economics* and *Ricardo – the New View*, thus raising the count to some 4,200 pages.

It is amusing to find the reviewer remarking only seven lines after his harsh strictures, oblivious to the self-contradiction involved: "It seems very difficult to deny that James Mill was a classical economist" (ibid.). But I accept the responsibility of dealing with his two charges, first that I have "reified" the term "classical economics," and second that I have imposed upon it a sense that

could at best be meaningful only in the twentieth century. Quite simply, I deny that these charges are justified. The writing of separate volumes on each of the "classics" was forced on me by an early realization – some thirty years ago when I set out – that each of the major authors of the 1770–1870 period had to be considered in detail precisely in order to avoid "premature reification." As for the second complaint, I submit that my critic (like many others) has himself committed the sin of "sophisticated" anachronism (I owe the term to Paul Samuelson) by failing to recognize that many of what he believes to be concepts originating only in this century are merely restatements of much earlier formulations, albeit in different language.

I shall proceed by specifying what I believe to be the elements that constitute the "core" of classical doctrine, while at the same time keeping a close check on who amongst our authors maintains all, and who only maintains parts of the whole. In the course of this exercise I shall indicate the complexity that various contemporaries of the "classics," and even successors in the post-1870 period, who formally rejected the doctrine in whole or in part, prove from their texts to have been adherents. In the light of all this I shall raise the issue whether or not the classics can be referred to as a genuine "school." Finally, I allow for the policy dimension; for it distorts the perspective to focus solely on analytics.

I am, of course, aware of a variety of perspectives apart from my own: those preeminently of Marx, Sraffa (an offshoot of Marx), Jevons, and Keynes.[1] I submit however that these are either illegitimate – one's definition must have strong textual justification – or so narrow as to be distorting. My perspective on the classics is built up carefully from the texts and certainly cannot be charged with narrowness. Unfortunately, the time constraint obliges me to adopt more of an assertive tone than is ideally desirable, and to limit the coverage in various respects.[2]

The pure analytics

In considering the pure analytics of classicism I focus on growth, distribution and value theory, in effect the "real" dimension; and the theory of aggregate activity. These are, by and large, the issues that have most exercised protagonists in recent debate. Were I to widen the canvas and attend fully to monetary considerations it would be necessary to consider the great banking controversies and also allow conspicuously for the pre-Smithian contribution of David Hume, particularly the so-called specie flow mechanism. I imagine, to begin with, a representative classical author, "our author." Later on I attend to specific attributions. Where to start is somewhat arbitrary, considering the interdependencies involved in the fully-fledged renditions.

Elements of growth theory

The essence of our classicist's growth theory lies in its perception of the average real wage or, in the simplest models, the average corn wage, as a market-determined variable which, because of the land-scarcity constraint and in the absence of prudential population control (about which more when we come to policy), is subject (along with the profit (interest) rate) to downward secular

pressure. The proximate cause of the falling real wage, it should be noted, is the deceleration in capital accumulation (and thus in aggregate labor demand) imposed by increasing land scarcity. The simultaneous decline in the returns to the variable factors, labor and capital, we shall call "the principle of the shared incidence of diminishing returns," referring to the falling marginal product of variable labor-cum-capital on fixed land. (Rent in this model is treated as a differential surplus, a position that implicitly assumes one-use land.) Whether or not the wage decline is steep or shallow, rapid or slow, the *essential* feature of the model is the necessarily simultaneous decline of the profit and wage rates. As for the celebrated "subsistence" wage, that rules in the stationary state alone – the end-point of the growth process – and is reached simultaneously with that profit rate corresponding to zero net capital accumulation.

How is it that if the corn wage is falling, the burden of diminishing returns cannot be entirely shifted on to labor, thus insulating the profit rate from decline? The explanation lies in the fact that the fall in the corn wage is *necessarily* smaller than that of the marginal product so that the wage share – proportionate wages – necessarily rises. And it is proportionate wages that govern the profit rate. This is an application of the inverse wage-profit relation.

The inverse wage–profit relation and the labor theory of value

I have spelled out the argument thus far in terms of corn, but our representative classical also translated into money values, and the inverse relation can be expressed in those terms. In the simple case where agricultural produce and money – let it be the manufactured commodity "gold" – are produced under the same technical conditions in the specific sense of the same factor intensities with respect to the ratios between "labor" and "capital" (or the *time* labor is invested), then a *labor* theory of value will be applicable, for in that case changes in the wage leave relative gold prices unaffected, since prices vary uniquely in proportion to labor embodiment; and if we further suppose the labor embodiment in gold to be constant while that in corn rises secularly with diminishing returns, then the gold value of a unit of corn rises precisely to reflect agricultural labor's reduced productivity. This in turn means that the gold value of the output of ten men's labor (or one man's labor or any unit of labor selected) is constant, the rise in the corn price compensating precisely for the fall in output. In brief, the money value of the output of a given unit of labor remains constant whatever the magnitude of the output might be.

Now in terms of such reasoning involving a "gold" measure of value – in effect a labor measure – our author restated the earlier proposition that the profit rate is inversely related to labor's proportionate share, and tends downwards during the course of growth despite the fall in the corn wage. For since the corn wage necessarily declines less steeply than the marginal product, the labor embodied in the corn basket paid to labor increases, an increase reflected in a higher *money* wage rate, money measuring labor embodied. But since the money value of the marginal output is constant, the residual (profits)

is necessarily squeezed. In brief, in terms of labor-measuring "gold," the money wage reflects both labor embodied in the wage basket *and* proportionate wages. Notice that if we select as our minimum labor unit a day's work, we may restate the inverse wage–profit theorem thus: "the profit rate varies inversely with the fraction of the workday devoted to producing the laborer's own consumption goods," a familiar Marxian theorem.

The status of the labor theory I have outlined is to provide the simplest possible exposition of the inverse wage–profit relation in *value* rather than *physical* or *corn* terms. Our classical writer was much preoccupied with this issue, but was sensible enough to realize that everything could not be allowed to hinge on the satisfaction of the strong conditions required to obtain the results given above. For there were severe measurement problems, not least that commodities are not all produced by the same factor intensities. Yet notwithstanding, he stood by the inverse wage–profit relation, defending his position that the profit rate turns on the proportionate shares quite generally – assuming, that is, actual as distinct from "ideal" money, even assuming *fiat* rather than *commodity* money – and basing himself on the assurance of a constant general level of prices in the face of changing money wages, that is on a version of the quantity theory.

Cost-price and demand and supply analysis

The third element involves the theory of commodity pricing, and has been silently alluded to already in discussing labor values. For the labor theory is nothing more than a theory of long-run equilibrium price – cost price – under the special conditions of uniform factor intensities, as I shall explain.

"Cost of production" or "natural price" includes profits as well as wages each at its average or ordinary rate. Under conditions of uniform factor proportions, a state of general equilibrium such that prices reflect costs throughout the system, will be one satisfying both profit-rate uniformity and proportionality of price to *labor* inputs. More accurately, under the stated circumstances, uniformity of profit rates requires that proportionality. And it is the possibility of capital (and labor) movement between uses, or commodity-supply adjustment, which assures the tendency to cost price and proportionality to labor input.

In circumstances of *differential* factor ratios, the same assumption of factor mobility dictates a divergence of cost prices from labor inputs. However the entire notion of cost price presumes factors that have alternative uses; and whether or not costs are proportional to labor inputs, only those returns that reflect alternative opportunities are allowed for in costs. Embodiment of labor, or the pain cost attached to labor and abstinence, are of no relevance in price determination though they are in aggregative growth theory.

The principle of profit-rate equalization which provides the key to the analysis of resource allocation turns on standard demand–supply analysis. Since it is in response to profit-rate inequalities that capital transfers from one employment to another, an economy-wide change in labor productivity, or any other disturbance impinging equally on all commodities, has no differential effects on profitability at the initial long-run cost prices and

therefore generates no changes in supply, leaving those prices unchanged. By contrast, a disturbance limited to a single industry, such as a change in input coefficients or a specific tax or subsidy, raises or lowers the industry return on capital and so will generate an increase or decrease in industry output and consequent alteration in price, to re-establish the original return in that industry. Applications of the distinction in question extend far and wide, one of the most important bearing upon the fundamental nature of trade. For a "cause" that raises the cost price of one or even a few manufactured commodities, would check their exportation; but if the same cause operates generally on all, the effect is merely nominal, and neither interferes with their relative cost values, nor in any degree diminishes the motive to trade.

Now the principle that cost prices reflect the absence of preferable alternative opportunities also provides the rationale for the *inverse wage–profit relation*. In the event of uniform factor proportions no price changes will occur when the general wage is raised; and since prices do not vary at all, general profits must be affected inversely. In the case of differential factor proportions between industries, the impact of a general wage increase is more substantial. At the initial prices the profit rate must decline across the board; but the decline will be sharper in "labor-intensive" than in "capital-intensive" industries and accordingly, consistent with the analysis of economic process just outlined, reallocation of resources between sectors will be set in motion in response to the disturbed structure of returns on capital. In the new equilibrium the prices of commodities produced by labor-intensive processes will have risen relative to those produced by capital-intensive processes – outputs contracting in the first category and expanding in the second – and the profit rate will again be equalized everywhere but at a lower level than in the initial equilibrium.

Two further details on allocation theory may conveniently be added here to our earlier discussion of the growth process. First, the downward pressure on the wage to which we there referred is motored proximately by the decelerating capital accumulation – and thus growth rate of aggregate labor demand – imposed by the land-scarcity constraint. Now labor-demand conditions turn, more specifically, not on total capital but on the so-called "circulating" as distinct from "fixed" component of capital. Thus they vary with technological change that plays on capital composition and also – and this is the point at issue now – by changes in the *pattern* of demand for final goods, in the event of non-uniform factor intensities in the affected industries. Final expenditure patterns matter for distribution. Conversely, changes in distribution can play upon final demand patterns. There is, in brief, a mutual relationship between distribution and pricing which complicates the simple growth pattern. Second, it should be noted that the margin of cultivation itself is an endogenous variable, with the long-run cost price of corn subject to the mutual conditioning of demand as well as supply, and satisfying the market-clearing requirement.

There is also a further extension. The logic of allocation economics emerges strikingly in the analysis of international trade where the assumption of factor mobility is abandoned. I refer to the celebrated theory of comparative advantage.

The "law of markets"

The notion that the money value of commodities supplied is identically equal to the money value of commodities demanded has been referred to as "Say's identity," and the very different notion that the two are equal only in conditions of equilibrium as "Say's equality," after the French economist J-B. Say (1767–1832). The former version may be interpreted to imply that money *per se* has no utility to recipients who, having no reason to hold it in the form of cash balances, attempt to disburse it immediately for goods. Under these conditions prices will be driven up to infinity given any positive money supply, which in fact implies the absence of money stocks, that is, a barter system wherein the price level has no relevance. This version of the law of markets is inconsistent with the "quantity theory," which implies a determinate level of prices for every given money supply.

The weaker version of the law of markets – it is the version to which our classicist adhered – avoids this inconsistency.[3] In *equilibrium* no attempt is made to add to money balances out of sales proceeds, but there may be temporary deviations of aggregate demand and supply. On this second view, a doubling of both the money supply and the price level will leave relative prices unchanged. Relative prices thus appear to be determined solely in the "real" sector of the economy, while the level of prices depends on the supply of money. In fact substitution of money for commodities and substitution between commodities occur in any transition between equilibrium states as just described; relative prices – and the interest rate – may well be affected (temporarily) by changes originating in the money market. On this second view too, while temporary deviations of aggregate demand and supply are recognized, there is nothing in the secular course of expansion to bring about such deviation. The only cause for profit-rate decline in the course of growth is the rising cost of wage goods as explained earlier; in the absence of such increase – reflecting increasing land scarcity – the system could expand without check.

Adherents to "classicism"

I have spoken thus far of a "representative" classical position. Let me come clean: I intended all along David Ricardo. The first three of the foregoing propositions will be found conspicuously in his works, usually in the mature *Principles* (Ricardo 1951–73), but confirmed in his correspondence and other informal contexts. There is though one qualification: the allocative rationale for the inverse wage–profit relation is implied by Ricardian logic but not spelled out by Ricardo; it is, however, explicitly formulated by J. R. McCulloch, Ricardo's "student" (Hollander 2000a). Ricardo's acceptance of Say's equality – though not the "real balance" rationale, for that is a post-classical rationale – is clear from various applications and policy recommendations.

Smith, Mill and Malthus, as we said at the outset, are all conventionally classed as "classical economists." Did they in fact though all maintain the full set of Ricardian propositions? We shall try to be very specific on this matter. Moreover, were there other – possibly unwitting – adherents? What can we also

infer, in the light of this discussion, about the validity or usefulness of the term "classical school"?

Professor Samuelson (1978) finds in *The Wealth of Nations* a full-fledged "canonical," land-based, growth model. I accept that there are elements of the model in Smith's text: appreciation of increasing-cost industries and of differential rent, though not in the analysis of corn pricing; the impact of land-scarcity conditions in depressing the general profit rate to a minimum, though interspersed with the notion of increasing "competition of capitals" during the course of growth reflecting upward pressure on wages and downward pressure on final prices; in the context of economic development, the prediction of a fall in the agricultural relative to the manufacturing profit rate, as population growth generates increasing land-scarcity and a consequent rise in rents and fall in wages; and a downward wage path implicit in the notion of a minimum wage at which population growth ceases, that is, in the recognition of a stationary-state wage. However the growth analysis is incomplete: while high wages and high profits are said to characterize early states not yet subject to land-scarcity constraints – such as new colonies – the rationale for the downward course of wages in a deceleration of accumulation imposed by increasing land scarcity is not spelled out. Nor did Smith ask why, given scope for a decline in the real wage, there should be a necessary reduction in the profit rate, and thus did not reach the Ricardian position that the inverse wage–profit relation holds good in terms of proportionate shares, the falling secular wage entailing a necessary rise in labor's share in the declining "marginal" product. (There is also a celebrated but uncoordinated "increasing-returns" component of Smith's economics which treats innovation as an endogenous variable.) The growth model, it may be allowed, was "in the air" when Ricardo came on the scene, in so far as several of its elements are to be found in the *The Wealth of Nations*, but there is no fully-fledged Smithian version. Important too is the fact that the main contributors to the corn-law pamphlet literature of February 1815 (Ricardo, Malthus, Sir Edward West, Robert Torrens) did not find in Smith the principle of diminishing returns.

As mentioned, Smith lacked the inverse wage–profit relation as a proposition relating to proportions. This is *a fortiori* the case in a monetary system, since he maintained that any increase in the money wage can be passed on either to landlords or to consumers, in sharp contrast to the Ricardian position. Ricardo himself thought of his own analysis in these respects as making novel contributions to the science.

I turn to the law of markets issue. The famous Smithian doctrine of savings, which eulogized capital accumulation – Smith in one usage refers to labor in the capital-goods sector as "productive" labor – and maintained that the process of savings entails no leakages from the income stream, implies that no attempt is made to add to money balances from sales proceeds. Yet Smith did not explicitly formulate the proposition that there can (given tolerable security) be no general excess supply of commodities: the counterpart of the absence of net hoarding. Most significantly, we have referred to his increasing "competition of capitals" concept which implies a constraint on secular expansion wholly independent of increasing land scarcity thus reflecting a failure of markets to expand in proportion with aggregate output.

So, Smith in 1776 had not read Ricardo's *Principles* of 1817, but Ricardo certainly had studied Smith. What then did he take from the *The Wealth of Nations*? I would say primarily the general principle of cost price, or the analysis of pricing in the context of general equilibrium in the sense outlined earlier, whereby in equilibrium there are no further gains to be made by reallocation of resources between sectors; and also the relation between market-clearing short- and long-run prices which provides the process assuring a tendency to equilibrium. There is this difference, however: Smith included rent within cost price on grounds of multi-use land, and he undertook much of his allocative analysis in a developmental context involving an open economy subject to variations in factor proportions over time. On the other hand, there is the novel "Ricardian" application of price theory to the effect of a wage increase on relative prices in the case of non-uniform factor ratios. Standard partial-equilibrium analysis – the demand–supply analysis applied to a single industry – would be inappropriate for the analysis of the foregoing disturbance; for in the new equilibrium, while some prices will indeed be higher than originally, others will be lower, supply conditions having deteriorated in the former case but actually improved in the latter, "improved" in a *relative* sense as is meaningful only within a general-equilibrium framework.

In one other respect in a related context Ricardo corrected Smith. For Smith had asserted of agriculture that it was the most productive sector, having in mind a return to land (rent) in addition to the returns to capital (profit or, rather, interest) and labor (wages) which characterize the manufacturing sector, an easy error to make, reflecting a degree of agricultural bias perhaps absorbed from the French physiocrats. Ricardo pointed out that the payment of rent to the third factor reflected not only productivity but scarcity conditions, so that, first, were agricultural land to increase in supply, rents would fall to the benefit of workers and capitalists; and second, were natural forces to become scarce in manufacturing, a rent would have to be paid their owners at the expense of wage and profit earners. The deemed advantage of agriculture was an optical illusion. Here too there was analytical advance in 1817.

I turn next to Malthus, Ricardo's exact contemporary, basing myself on my recent researches into this most complex of writers (Hollander 1997). It would be an error to believe that because they spoke and wrote to each other, indeed liked each other, they understood each other. For Malthus labored under the misconception – endemic in his time and ever since – that Ricardo failed to apply demand–supply analysis to long-run cost pricing, working with what has recently been termed a "one-legged" theory allowing solely for supply conditions. Certainly Malthus strived to show that "the great law of demand and supply is called into action to determine what Adam Smith calls natural prices, as well as what he calls market prices," that "cost of production itself only influences prices of these commodities as the payment of this cost is the necessary condition of their continued supply . . . to the extent of the effectual demand for them." (Malthus 1836: 70–1) But this was precisely Ricardo's position too. Nothing Ricardo could say caused him to abandon his misinterpretation, including Ricardo's repeated insistence, first, that growth of population, and therefore of demand, must precede extensions of agriculture (the matter of the endogenous margin); and second, most generally, that he was arguing for

the *primacy* of supply, not for supply as the sole consideration in pricing. There is little then to justify designating Malthus as a "subjective value" theorist in any sense that would not also apply to Ricardo. Indeed, in some important respects Ricardo's allocative orientation is more striking that Malthus's. For, unlike Ricardo, Malthus excluded long-run corn pricing from treatment in terms of demand and supply on the grounds that the demand and supply schedules are *interdependent* in that special case – having in mind the corn–population relation – whereas regular pricing analysis requires their *independence*. Malthus laid claim to a typical and non-Ricardian concern with the "short run"; but the corn-pricing analysis – which reflects in part his "physiocratic" heritage – is there to haunt him. Also to be noted is Malthus's acceptance of the erroneous Smithian notion of the superior productivity of agriculture, against which Ricardo remonstrated.

We turn now to Malthus on growth theory, specifically the shared-incidence principle. Splendid formulations will be found both in the *Essay on Population* (Malthus; fifth edition, 1817) and in the *Principles of Political Economy* (Malthus 1820, 1836) with explanations of the constraint on the fall in the real (corn) wage relative to the marginal product such that labor's *proportionate* share rises, thus depressing the profit rate. The precise incidence of diminishing returns between labor and capital is said to be market determined – an allusion to competition in the labor market – in criticism of Ricardo, though that was precisely Ricardo's position. We have to live, as I said, with this very human complexity. At least Malthus paid warm tribute to Ricardo for the general inverse wage–profit relation while at the same time he insisted on his own measure-of-value device to obtain the same result.

Lord Robbins opined that Malthus's role in building up the system of classical thought is "a matter likely to arouse much more controversy than the answer to a similar question in the case of the other great classical economists," though Robbins had little doubt of a profound contribution as far as regards "the central traditions of the theory of value and distribution," including here the theory of population in a land-scarcity context (Robbins 1970: 86, 89). There is indeed much common ground in this domain once we silence the noise emanating from the misunderstandings between himself and Ricardo and the exaggerated representation of his own procedures as substantively (and methodologically) distinct. At the same time, I would not ignore the physiocratic-based or Smithian agricultural-surplus construct which complicates the picture.[4]

The problem of placing Malthus in the "classical fold" is most troublesome regarding aggregate equilibrium. To my mind this problem does not pertain to his various allowances for unemployment and excess capacity, notwithstanding the impressive quality of his analysis of the post-Napoleonic depression, since Ricardo did not rule out short-term excess supply. It is in the secular realm that any notion of a common "classical system" seems to break down, considering Malthus's concern – it has Smithian pedigree – with the possibility of non-sustainable growth unrelated to land scarcity. Yet even here there are considerations that somewhat narrow the gap. First, the extensions made by Malthus to Smith's "competition of capitals" relate most specifically to the industrial sector; the law of markets he still applied to corn. Second, the

problem of non-sustainable growth for Malthus entailed a danger of excessive accumulation: excessive because financed from reduced consumption rather than from increased profits; in so far as accumulation *is* motivated by the profit rate, as Malthus (taking the long view) believed was the case in advanced economies, there normally would *not* occur non-sustainable accumulation. We shall have more to say on all this in our later discussion of policy.

A word next on John Stuart Mill. Mill was profoundly Ricardian in nearly all respects and frequently came to Ricardo's defense against misrepresentation and miscomprehension on the issues raised in "The Pure Analytics." There is however this surprising exception, that while Mill himself adopted the falling real wage characterizing the canonical growth model, he apparently was unaware of Ricardo's true position, attributing to Ricardo a constant-wage model, and thus sowing much confusion. A second qualification – more positive – is in order. The canonical growth mechanism was combined by Mill with a new cyclical perspective, for an endogenous trade cycle, with phases merging into one another in semi-automatic fashion, was better developed by him than by any earlier writer. These fluctuations were envisaged as an outcome of the falling rate of profit due to land scarcity, the downward tendency during a period of "quiescence" engendering speculative moods, there being fewer safe investment opportunities available; conversely, capital losses associated with the cycle play back on the profit rate itself. And there are also Mill's brilliant elaborations of demand and supply theory and its application to international trade supplementing the comparative cost principle.

A widening of scope

Up until the present day there is commonly found reference to a Jevonian revolutionary break away from "classicism" in the early 1870s, on the theory of value, though with allowance for Malthus as embryonic precursor. Thus Schumpeter denied that cost prices were understood by Ricardo as reflecting equilibrium between demand and supply, or market-clearing prices, and maintained that Malthus went even beyond Say, "nicely indicat[ing] the locus of cost of production, which 'only determines the prices of commodities, as the payment of it is the necessary condition of their supply' – a turn of phrase that points far ahead toward Jevonian teaching" (Schumpeter 1954: 602). Jevons (who made the famous complaint against Ricardo that he "shunted the car of Economic science on to a wrong line – a line . . . on which it was further urged towards confusion by his equally able and wrong-headed admirer, John Stuart Mill") himself wrote warmly of Malthus:

> There were Economists such as Malthus and Senior, who had a far better comprehension of the true doctrines (though not free from the Ricardian errors), but they were driven out of the field by the unity and influence of the Ricardo-Mill school.
>
> (Jevons 1879: li–lii)

This same misapprehension regarding Ricardo, that he rejected the demand–

supply explanation of long-run price and excluded a subjectivist dimension, will also be found in Malthus himself (as we have shown) and numerous contemporaries; in early neo-classical writers in addition to Jevons, including Walras and Wicksell; in the modern literature (Arrow, Hicks, Samuelson); and – most conspicuously perhaps – in the Sraffian or "Cambridge" literature, though for Sraffian writers the alleged rejection is a matter for applause, not for blame. In reality, Malthus and Ricardo were at one – following Adam Smith – in maintaining a "two-legged" theory of long-run price. And to this extent "classicism" never died out, but was absorbed into modern doctrine *via* Marshall's great synthesis.

Much the same picture of a complex intellectual tableau emerges in the context of classical growth theory.[5] First, while nearly all the expert economists in the period 1815–75 (in addition to Ricardo, Malthus and J. S. Mill I would list West, Torrens, James Mill, Bailey, McCulloch, Chalmers, Senior, and Cairnes) adhered to the shared-incidence principle, they were, with some important exceptions (McCulloch, Senior and Cairnes), often unaware of Ricardo's own position, attributing to him some version or other of constant-wage growth. In brief, Ricardo did not fulfil the role of leader equivalent to Quesnay in eighteenth-century France; and the classical doctrine was upheld by, so to speak, an *invisible school* whose members in many cases made a living by *attacking* Ricardo. This observation applies specifically to the shared-incidence feature of the growth process, because warm tribute was widely paid to Ricardo for his inverse wage–profit relation as a general proposition regarding proportions. There was, that is to say, almost universal recognition of Ricardo's inverse wage–profit relation *given* productivity (the wage–profit frontier), but wide neglect of his elucidations of inward displacements of the frontier with increasing land scarcity such as assure a contemporaneous decline in the returns to both variable factors.

Second, I believe Paul Samuelson is quite correct when he argues that the canonical model was subscribed to by the late nineteenth-century "neo-classicals" and by moderns, who "all tell essentially the same classical story." For Samuelson justly denies that classical political economy offers an "alternative-paradigm" in Thomas Kuhn's sense "to modern mainstream economics" (Samuelson 1978: 1430n, 1415).

The position of W. S. Jevons is particularly striking in this regard. Jevons attributed to the British writers a *constant* wage-growth model and implied that he himself saw merit in shared incidence:

> It is the accepted opinion of the present day, that the rate of interest tends to fall because the soil does not yield proportionate returns as its cultivation is pushed. But I must hold that this decrease in the proportionate returns would chiefly fall upon the wages of the labourer.
>
> (Jevons [1862] 1866: 287)

Similarly, in a lecture of 1875 he objected to the subsistence-wage growth concept attributed to Ricardo and Malthus on the grounds that "every enlargement of our resources only tends to land us in a larger . . . but more straightened population" (Jevons 1977: vol. 6: 60). Jevons had no inkling that

the position he was forwarding was precisely that of the "classical" orthodoxy from whose grip he sought to escape.

In the light of the foregoing discussion, and having in mind that the moderate classical position on the law of markets was retained in the post-1870 decades, we are left with the following generalizations. It may be helpful for some purposes to refer to the century 1770–1870 as the century of (British) "classical" thought, its commencement marking a major breakaway from mercantilist attitudes (I hasten to add that Smith was not literally the first in the field), and its close marking the transition to formal mathematical method. We must however be prepared to allow the following qualifications regarding substantive content. First, the various contributions of 1815 and 1817 constitute together an important transition stage towards maturity, with conspicuous reference to the implications of land scarcity. Second, adherence to Ricardian growth principles was so extensive as to include writers often considered (and in some cases who considered themselves) to be non-Ricardian, even anti-Ricardian, thus casting some doubt on the validity of the term "classical school," since a school usually has a recognized principal. That those Ricardian principles remained on the books long after the so-called "close" of the classical period carries the same implication.

There is one other matter alluded to at the outset. My position on classical analysis is based on firm textual evidence; I have been engaged in "historical" not "rational reconstruction," avoiding the anachronistic importation of modern "ideas and definitions." In fact, even algebraic or geometric renditions do not necessarily conflict with historical reconstruction.

Policy and application

The classical theory of economic policy entails a general presumption in favor of the competitive market in a private-property environment as means to maximize (per capita) national income – and thus the wherewithal for consumption and accumulation (see note 2 and the Section regarding "An alternative conception of classical economics") – though a role for government was allowed in cases of divergences between private and social returns.[6] I would like briefly to illustrate from some price-theoretic applications made by Ricardo, since so many of those engaged in Ricardo debate seem wholly unaware of this dimension, identifying it more with Smith and Mill.

There is first to note Ricardo's "subjectivist" welfare orientation in his discussion of the benefits flowing from international trade, namely the increase in "the mass of commodities, and therefore the sum of enjoyments":

> It is quite as important to the happiness of mankind that our enjoyments should be increased by the better distribution of labour, by each country producing those commodities for which by its situation, its climate, and its other natural or artificial advantages, it is adapted, and by their exchanging them for the commodities of other countries, as that they should be augmented by a rise in the rate of profit.
>
> (Ricardo 1951–73, vol. 1: 132)

International specialization – by the "pursuit of individual advantage" – "distributes labour most effectively and most economically: while, by increasing the general mass of productions, it diffuses general benefit" (ibid.: 133–4).

Given this orientation, it is scarcely surprising to find Ricardo insisting that corn-law abolition would entail much more than a mere transfer of wealth away from landlords; there would be assured a net social gain deriving from improved efficiency of resource allocation:

> The sole effect of high duties on the importation either of manufactures or of corn, or of a bounty on their exportation, is to divert a portion of capital to an employment, which it would not naturally seek. It causes a pernicious distribution of the general funds of the society – it bribes a manufacturer to commence or continue in a comparatively less profitable employment. It is the worst species of taxation, for it does not give to the foreign country all that it takes away from the home country, the balance of loss being made up by the less advantageous distribution of the general capital.
>
> (Ricardo 1951–73, vol. 4: 314)

The same logic underlies Ricardo's proposal for a countervailing duty on corn envisaged as an instance of legitimate intervention, the duty compensating for the differential burden on domestic agriculture imposed by the system of tithes:

> It must not be supposed . . . that . . . the importation of corn should be at all times allowed without the payment of any duty whatever. . . . [W]ith a view to the real interest of the consumer, in which the interests of the whole community are, and ever must be, included, whenever any peculiar tax falls on the produce of any one commodity, from the effects of which all other producers are exempted, a countervailing duty to that amount, but no more, should on every just principle be imposed on the importation of such commodity; and further, that a drawback should be allowed, to the same amount also on the exportation of the like commodity.
>
> (Ricardo 1951–73, vol. 4: 243)

By this means, runs the argument – again notice the consumer-directed orientation – "[t]he course of trade would be left precisely on the same footing as if we were wholly an untaxed country, and every person was at liberty to employ his capital and skill in the way he should think most beneficial to himself" (ibid.: 244).[7]

Policy considerations relating to the theory of growth are our next concern. I have made much in the discussions of classical analysis of diminishing agricultural returns as source of an increase in *proportionate* wages (wages as a share of the marginal product), and thus a fall in the profit rate, notwithstanding a secular decline in the real wage. Here I must emphasize that our major contributors – Ricardo, Malthus and John Stuart Mill – made no literal *prediction* of falling real wages such as is sometimes ascribed to them. To the contrary: the *raison d´être* of their analysis was to encourage the creation and development of

institutional arrangements likely to assure against deterioration of standards, by altering labor-supply conditions in favor of prudential population control. Such efforts would, they fully realized, bring about a sharper rise in labor's proportionate share in the marginal product, and thus a sharper fall in the profit rate than in the absence of prudential population control and hasten the arrival of the stationary state; but it would be a tolerably comfortable state for the masses. Malthus, moreover, had most interesting things to say regarding the *endogenization* of population control. The classics, in brief, utilized their engine of analysis to indicate what might happen under alternative assumptions and what should, ideally, happen. Their models were *classificatory* devices used in the interest of social reform, not *predictive* devices.

Moreover, even the sharper fall in the profit rate that would result from successful population control might be avoided by the intervention of technical change. All the main contributors were aware of this fact, which in no way undermined the relevance of their model, as has been charged by some modern commentators blinded by the pseudo-scientific notion that literal historic prediction is the be-all and end-all of science. For whatever the pattern and rate of technical progress, living standards would be higher with, than without, population control.

Also to be emphasized here are striking new applications by John Stuart Mill of the Ricardian doctrine, which indicates its liveliness independently of the land-scarcity issue. Ricardo's was no "degenerating research programme." I shall give two examples: first, Mill's application of the inverse wage–profit theorem to the question of the responsibility of the emerging labor unions for price inflation; for in Ricardian theory any general wage increase has an impact on profits rather than on the general level of prices. Second are the implications drawn by Mill from his linkage of trend and cycle, particularly the potential for state investment in social amenity. Ricardian doctrine was alive and well at the time of Mill's death. It is regrettable that some of the economists of the 1870s sought to bury it along with Mill himself.

I wish to bring this part of my discussion to a close by reverting to Lord Robbins's observation that Malthus's place in the classical school is not easy to define. Regarding the theory of aggregate equilibrium this is so; and Robbins had this theme in mind largely. But the problem is less severe regarding monetary and fiscal policy, for it has been well remarked that so "classical" does Malthus appear at times in the *Principles* that he "is not so much an under-consumptionist as a supply sider" (Negishi 1989: 138–9). He refused to countenance government interference with the savings rate, viewing the profit motive as sacrosanct, the social index of the appropriate savings rate; similarly, he relied on "the interest of individual capitalists" with respect to the rate of adoption of machinery. Though he opposed debt repayment and the encouragement of increased saving during depression, his Friedmanesque "conservatism" regarding the gold standard, fear of inflation – he warned that inflationary note issues might ultimately end in depression once "failure of confidence" sets in – and muted perspective on counter-cyclical monetary policy can all be documented. The practical implications of his position are thus surprisingly "orthodox." Indeed, by his staunch defense of the gold standard he contributed to that near unanimity of opinion on policy that has been well

described as "one of the most remarkable facets of nineteenth-century economic doctrine" (Laidler 1972: 169). Still we must not lose our balance. Ricardo, after all, stated his own clear preference to devaluation over severe deflation in making his case for a Return to Gold, which fact – had it been common knowledge – might have strengthened Keynes's case against Churchill in the 1925 episode. There is even evidence of Ricardo's support for a degree of discretionary monetary intervention, albeit modest by our standards (Hollander 1987: 293–7; Davis 1998). The "orthodox" position on these matters was scarcely as irresponsible as it is so often made out to have been.

In addition to a concern with "sustainable growth" unrelated to land-scarcity considerations, which sets Malthus apart, there is also his celebrated support for the 1815 protective Corn Laws. Possibly the finest tribute to Ricardo is the fact that, in the end, Malthus abandoned agricultural protectionism and much of its theoretical physiocratic underpinning, accepting the Ricardian vision of Britain's future as a mixed economy fueled by the industrial sector. With this step a common "classical" position on general policy was profoundly enhanced.

An alternative conception of classical economics

Piero Sraffa (1898–1983) and his followers adhere to a kind of sequence analysis, whereby given technology and the structure of production (output levels), knowledge of the wage rate – given by sociological considerations exogenous to the economic system – suffice for the determination of the profit rate and the set of relative prices satisfying the condition that the profit rate is uniform across all sectors. (Alternatively, the profit rate may be known initially, in which case we can solve for wages and relative prices.) There is no relationship of mutuality between final prices and distribution, in that either the wage or profit rate is given to the economic system prior to pricing. In fact, on certain more restrictive assumptions, the wage–profit relation is settled entirely in "physical" terms. Most strikingly, the machinery of demand–supply analysis, including the negatively sloped demand curve, plays no role, and equilibrium prices need not satisfy the equation of supply and demand.[8]

This general perspective on sound economics is attributed by Cambridge historians to a "classical" school said to extend back to Sir William Petty, Richard Cantillon and François Quesnay. In some versions Adam Smith is included, but pride of place is indubitably accorded Ricardo and Marx with particular reference to their alleged adoption of the real wage as *datum* in the analysis of the allocation of the social surplus across sectors. I illustrate this version by citations from the dean of Cambridge historians, Maurice Dobb:

> The nature of [Marx's] approach required him to start from the postulation of a certain rate of exploitation or of surplus-value (or profit–wage ratio in Ricardo's terms); since this was *prior* to the formation of exchange-values or prices and was not derived from them. In other words, this needed to be expressed in terms of production, *before* bringing in circulation or exchange.
>
> (Dobb 1973: 148; cf. 118–19)

In the system of determination envisaged by Ricardo, and *a fortiori* and more explicitly as envisaged by Marx, there was a crucial sense in which distribution was *prior* to exchange: namely, that price-relations or exchange-values could only be arrived at *after* the principle affecting distribution of the total product had been postulated. The determinants of distribution, as we have seen, were sited in conditions of production (Ricardo's conditions of production of wage-goods; Marx's "social relations of production", introduced from outside the market, or as it were from a socio-historical fundament to phenomena of exchange).

(Dobb 1973: 169)

What is particularly striking (some might say revolutionary) about the Sraffa system viewed as a whole is its rehabilitation of the Ricardo-Marx approach to problems of value and distribution from the side of production; with the consequential result that the relative prices are independent of the pattern of consumption and demand.

(Dobb 1973: 257)

The fact that the level of wages has to be independently postulated as a *datum* in this mode of price-determination ("regarded as consisting of specified necessities determined by physiological or social conditions which are independent of prices or the rate of profits" (Sraffa 1960: 33) means that we are back at the methodology and approach of the (truly) classical system. No attempt is made to derive a theory of distribution from *within* the circle of exchange; and in the abandonment of this attempt we witness a reversion to the pre-Jevonian order or pattern of determination: prices are derived from (or in part dependent upon) conditions of distribution rather than distribution being derived from the structure of prices treated as being in turn a resultant of demand.

(Dobb 1973: 261)

As for nineteenth-century trends, the main line is therefore said to run from Ricardo directly to Marx to be picked up again only in our century by Sraffa, in whose system – rather, in a sub-set of that system – the profit rate is yielded as a *physical ratio independent of relative prices*. Sraffa himself claims that his famous monograph was written from the "standpoint . . . of the old classical economists from Adam Smith to Ricardo [which] has been submerged and forgotten since the advent of the 'marginal method'" Sraffa 1960: v).

Now I do not maintain that the Sraffa-Dobb viewpoint on Ricardo is a figment of a fertile imagination.[9] But the textual evidence for it will be found in a select number of chapters in the *Principles* where Ricardo engages in highly simplified illustrative exercises yielding the Marx-like formula for the profit rate noted earlier. This constrained view neglects the much broader body of evidence pointing to Ricardo's elaboration of market determination of wages and prices and their interdependence. Though a given wage permits (*ceteris paribus*) a "forecast" of the average profit rate independently of prices and thus entails the priority of distribution, the wage is *not* in fact a datum, but is determined in the labor market and played upon both by the growth rate of capital

(partly motivated by the return on capital) and the pattern of final demand, the latter itself partly governed by the (variable) income distribution. The breakdown between wages and profits is, for Ricardo, a variable determined within the market economy. The Sraffian view also sets at nought all of Ricardo's "allocative" applications to contemporary policy issues. Of course, Sraffa and the neo-Ricardians – and Marx for that matter – may have been inspired by the "truncated" Ricardo. There can be no objection to that. It is the view expressed of "what Ricardo really believed" – their alleged *historical* reconstructions – that troubles me.

There is a more specific consideration to note in this regard. Nothing that I have said disputes that the "classics", Ricardo included, were deeply concerned with matters relating to "surplus."[10] They focused particularly on the source of investible funds (and of tax capacity) in which context there was much discussion of the alternative savings patterns of the various classes. Indeed, that increased efficiency – via trade or technical change – expands the surplus available for accumulation and taxation, though not necessarily the profit rate, is a major theme for Ricardo. For example:

> Foreign trade . . . though highly beneficial to a country, as it increases the amount and variety of the objects on which revenue may be expended, and affords, by the abundance and cheapness of commodities, incentives to saving, and to the accumulation of capital, has no tendency to raise the profits of stock, unless the commodities imported be of that description on which the wages of labour are expended.
>
> (Ricardo 1951–73, vol. 1: 133)

> I have endeavoured to shew, that the ability to pay taxes, depends, not on the gross money value of the mass of commodities, nor on the net money value of the revenues of capitalists and landlords, but on the money value of each man's revenue, compared to the money value of the commodities which he usually consumes.
>
> (Ricardo 1951–73, vol. 1: 8)

Even the "source" of profits in surplus labor time is formally spelled out by John Stuart Mill (Mill [1857] 1965: 11, 411) and this before Marx, and is implicit in the Ricardian formula for the profit rate. At the same time, *pace* Marx, to isolate the source of profits (interest) in surplus labor time does not rule out the notion of interest as a necessary reward for saving such that "[t]he motive for accumulation will diminish with every diminution of profits" (Ricardo 1951–73, vol. 1: 111). Productivity conditions assure an excess over the output consumed by labor and are the basis for investment demand; while abstention from present consumption relates to capital-supply conditions. If however, as for Ricardo, the wage rate is a variable partly governed by capital-supply conditions, it follows that the "necessary" part of the work day is as much a consequence as a determinant of the "surplus" part. As Ricardo put the matter, there is a "natural equilibrium between profits and wages" (ibid.: 226).[11] Our classics inhabited a "Marshallian" not a "Marxian" universe.

Notes

1 The term, "classical," was used by Marx to cover a body of economics originating with Sir William Petty and concerned with "the real relations of production in bourgeois society, in contradistinction to vulgar economics, which deals with appearances only" (Marx [1867] 1965: 81n). See also Marx's representation of Petty as "the father of English political economy" (Marx [1859] 1970: 53).
2 For an illuminating account of "The French Foundations of the Classical Canon," see Eltis 1998. Eltis cites four fundamental propositions treated "comprehensively" in *The Wealth of Nations* but "originat[ing] previously in France":

> 1 Economies will function most efficiently where all markets are competitive, and where those who own property determine investment and production decisions. For these to be efficient, entrepreneurs must be confident that they will obtain the legal title to wealth they create.
> 2 Some economic activities are productive and have the potential to generate a net surplus. Others, and especially those organized by the state, are unproductive and can only be sustained from the surpluses of productive activities.
> 3 The growth of economies will depend on the reinvestment of surpluses from productive activities. If these are absorbed or more than absorbed by the unproductive, nothing will remain for investment, and a nation's output will stagnate or decline.
> 4 Population will expand indefinitely to match the demand for labor at a wage which maintains families at a standard of living where sufficient children survive.
>
> The classical school united to advocate free competition, the undiluted enforcement of capitalist property rights, the virtues of thrift over profligacy and the maintenance of low taxation and government expenditure.
>
> (Eltis, this volume: 185)

   All this is acceptable, and implicitly taken for granted in my paper which focuses more on nineteenth-century British developments in analysis, but see "Policy and application," this chapter.
3 On this version, "supply creates its own demand" by means of changes in the price level. Thus, in the event of a reduction in the supply of money *ceteris paribus*, the resultant excess demand for money (and corresponding excess supply of commodities) will be corrected by way of a decline in the level of prices. The essence of the matter lies in the notion that the community wishes to hold a certain command over goods and services in the form of money balances; since the real value of any given stock varies with changes in general prices, the initial excess demand for money will be satisfied by a rise in the purchasing power of the (lower) money stock until a new equilibrium is achieved.
4 There is also evidence of a corn input-corn output approach to profit-rate determination in Malthus's post-1820 work. This matter is still, so to speak, *sub judice* (Hollander 2000b.)
5 I base these remarks on Hollander 1998.
6 It is also salutary in this day and age to remind free-marketeers of Adam Smith's championship of the contemporary usury laws, for a more striking instance of intervention than credit-market control can scarcely be envisaged (Hollander 1999).
7 The "efficiency" case is closely related to the question of surplus as source of savings.
8 See selections from Kurz and Salvadori 1998a, 1998b.
9 Here I base myself again on Hollander 2000a.

10 This dimension also figures large in the account given of eighteenth-century "foundations" in Eltis, chapter 10 this volume (note 2).

11 The context is taxation. The direct or the indirect effect of profit taxation is to reduce the rate of accumulation so that the burden is in fact shared between capital and labor:

> excepting in the immediate effects, I should think it of little importance whether the profits of stock, or the wages of labour, were taxed. By taxing the profits of stock, you would probably alter the rate at which the funds for the maintenance of labour increase, and wages would be disproportioned to the state of that fund, by being too high. By taxing wages, the reward paid to the labourer would also be disproportioned to the state of that fund, by being too low. In the one case by a fall, and in the other by a rise in money wages, the natural equilibrium between profits and wages would be restored.
>
> (Ricardo 1959–73, vol. 1: 226)

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3 Notes towards an un-canonical pre-classical model of political oeconomy

A. M. C. Waterman

In the cultural history of our discipline, the great divide occurs in the first decade of the nineteenth-century. Before 1798 "economic thought" – and the nascent science of "political oeconomy" itself – is wholly compatible with, indeed almost a part of, Christian theology (Waterman 1998). After 1804 or thereabouts, political economy is hated and feared as "hostile to religion," and there suddenly appears what Donald Winch has lately described as "the schism, or fault-line, separating economists from the self-appointed spokesmen for human beings" (Winch 1996: 6, 402, 418).

Adam Smith lived and died on one side of this "fault-line"; Malthus, Ricardo, and J. S. Mill on the other. In a conference assembled to honor Samuel Hollander for his many distinguished contributions to the history of economic thought and in particular for his Herculean "Studies in Classical Political Economy," it seems appropriate to consider his work as a whole. Is Hollander's first volume the beginning of a series; or is it rather the prolegomenon to a significantly different enterprise that begins with the story of Malthus?

According to Paul Samuelson a single "canonical classical model of political economy" can be constructed which captures the most prominent analytical concerns of "Adam Smith, David Ricardo, Thomas Robert Malthus, and John Stuart Mill." "When the limitation of land and natural resources is added to the model of Karl Marx," he too "ends up with" the same theoretical scheme (Samuelson 1978: 1415). A one-sector, agricultural model with fixed land and diminishing returns to the variable "labor-*cum*-capital" variable input generates the "Ricardian" theory of rent, the (non-Marxian) falling rate of profit and the classical growth model leading to the stationary state.

In my opinion this is a powerful and fruitful reduction of Malthus, Ricardo and Mill. But a large historical question – one immediately raised by Hollander (1980) himself – is just how well it describes the analytical programme of *The Wealth of Nations* (*WN*) as a whole. Recognition of diminishing returns may be discovered in Smith's text as Hollander acknowledged. But Smith's immediate successors were quite unaware of it, believing they had discovered this key concept themselves. And so did everyone else at that time. The reason why a great gulf between economists and human beings opened up some time after 1800 is because of the theological "problem of evil" created by the dominance of scarcity in human affairs. That problem

was stated for the first time in *An Essay on the Principle of Population* (Malthus 1798). As everyone – even Marx – agrees, the coherence (and cogency) of the *Essay* depends upon the implicit assumption of scarce land and diminishing returns. Before 1798 political oeconomy was a "chearful" and optimistic study of the nature and causes of the wealth of nations. After Southey's (1804) vitriolic review of the second *Essay*, it became a dismal science of scarcity and tragic choices. Before 1798, I wish to suggest, the chief constraint upon economic growth was supposed to be capital: after 1798 it was land, and whereas a capital constraint need only be temporary – for its cure is "parsimony" – there can be no lasting remedy for a land restraint.

It is therefore my purpose in this chapter to expose a bold conjecture to the ruthless refutation of other, better scholars. Broadly speaking – I shall postulate – most eighteenth-century authors before Malthus were chiefly concerned to investigate the development of a "market society" in which all production is demand-led, and in which a rural, agricultural sector, and an urban, manufacturing sector are mutually stimulating. If I am right, we might construct an "un-canonical", "pre-classical" model of political oeconomy which would capture all (or at any rate much) of what Mandeville, Hume, Cantillon, Quesnay, Steuart, Smith, Paley and others were attempting to analyze, and which differs sharply from the canonical classical model in treating land as a free good (to landlords though not to anyone else). Any such model is merely an observational instrument for viewing the economic literature of the past. In this chapter I shall describe my telescope and nothing more. Only if it survives the criticism of my colleagues may I later use it to behold the distant prospect of pre-Malthusian economic thought.

General characteristics of the model

Two sectors exist in an economy which may be closed or open: a rural, agricultural sector, A, and an urban, manufacturing sector, Q. Rural produce and urban manufactures are freely traded at competitive prices without transport costs or taxes. If the economy is open, A-sector goods are exported, Q-sector goods imported. Money is endogenous and is used in trade and for payment of wages, but plays no other part. Population, which is freely mobile between sectors, is always fully employed at the market-clearing real wage. Capital consists of one period's advance wages.

"Lords of the soil" employ a rural population N_A of "laborers" at an annual wage rate $w = (f + pq)$, measured in units of "the means of subsistence," conceived as a homogeneous "food." The component f is a *constant of nature* and is biologically determined by "the narrow capacity of the human stomach." The component q is measured in units of a homogeneous, manufactured "luxury" good and may vary. The price p is the rate of exchange between "food" and "luxuries" (discussed later). Lords employ some portion of N_A as a "productive" population/work-force N_a, to produce an annual output F of food, where $F = \alpha.N_a$. The technical parameter α may vary, and may be or become endogenous. All or part of the agricultural surplus $S = F - N_a w = (1 - w/\alpha)F$, is used by lords to employ the remainder of N_A in "unproductive" activity: services of various kinds, official, professional, artistic and menial.

"Masters," who are the "owners of capital" in towns and cities, employ an urban population N_Q at the same, competitively determined wage rate, $w/p = (f/p + q)$, measured in units of the luxury good. Masters employ some portion of N_Q as a "productive" population/work-force N_q, to produce an annual output Q of luxuries, where $Q = \beta.N_q$. The technical parameter β may vary, may be an increasing function of scale, and may be or become endogenous. All or part of manufacturing profits, $P = Q - N_q w/p$, are used by masters to employ the remainder of N_Q in "unproductive" activity.

The food-price of luxuries, p, may be conceived *either* in terms of the labor theory of value, in which case $p = \alpha/\beta$; *or* as externally determined by international trade. In either case it can be treated as exogenous.

Lords and masters comprise a negligible proportion of total population, which is thus $N = N_A + N_Q = N_a + N_q + N_u$, where total unproductive population, $N_u = (N_A - N_a) + (N_Q - N_q)$. The food consumption of lords and masters may therefore be ignored. However there is no reason to assume that their consumption of luxuries is negligible.

At the end of any crop-year $(t$-$1)$ lords possess the total produce, F_{t-1}. They set aside a portion π_A of this to employ rural productive labor in period t, where the parameter π_A is the *degree of parsimony*. The remainder, $(1 - \pi_A)F_{t-1}$, may be spent in whole or in part on unproductive labor and – perhaps – in part on luxuries. Expenditure (measured in units of the F-good) by lords on luxuries in period t is thus $\lambda_A(1 - \pi_A)F_{t-1}$, and on unproductive labor is $(1-\lambda_A)(1 - \pi_A)F_{t-1}$, where the parameter λ_A is the *degree of luxury*. In the same manner, masters assign $\pi_Q.Q_{t-1}$ to the employment of urban productive labor in period t; and spend $\lambda_Q(1 - \pi_Q)Q_{t-1}$ on luxuries and $(1 - \lambda_Q)(1 - \pi_A)Q_{t-1}$ on unproductive labor. There is no reason to assume that the degrees of parsimony and luxury will be the same for lords as for masters.

The distribution of annual product in each sector is depicted in Figure 3.1.

Adjustment of output and population

Lords and masters determine production in response to "effectual demand." Demand for the output of each sector comes from lords and masters themselves (for investment in advance wages, and for luxury consumption), from the other sector, and – in the case of an open economy – from the rest of the world. Since $F_t = \alpha.N_a$, and since $N_a = \pi_A.F_{t-1}/w$, then current production is

$$F_t = (\alpha/w).\pi_A.F_{t-1} \tag{1}$$
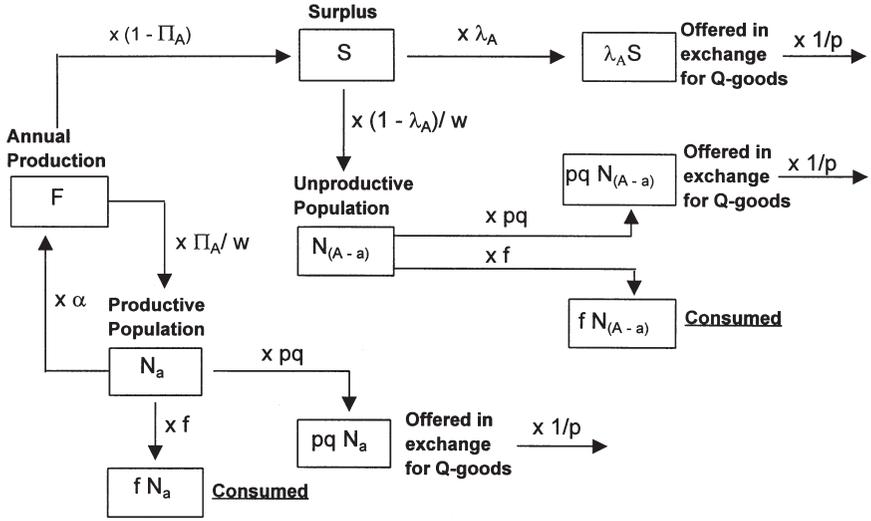
and similarly

$$Q_t = (p\beta/w).\pi_Q.Q_{t-1} \tag{2}$$

When $\pi_A = w/\alpha$ and $\pi_Q = w/p\beta$, then $F_t = F_{t-1}$ and $Q_t = Q_{t-1}$, which is "simple reproduction," though not necessarily in steady state.

If demand changes, lords and masters must adjust supply in the current period by changing π appropriately. To meet an increase in demand for food

A-sector

$x(1-\Pi_A)$

Surplus

S

$x \lambda_A$

$\lambda_A S$

Offered in exchange for Q-goods

$x\,1/p$

$x(1-\lambda_A)/w$

Annual Production

F

$x\,\Pi_A/w$

Unproductive Population

$N_{(A-a)}$

$pq\,N_{(A-a)}$

Offered in exchange for Q-goods

$x\,1/p$

$x\,pq$

$x\,f$

$f\,N_{(A-a)}$ Consumed

$x\,\alpha$ Productive Population

N_a

$x\,pq$

$pq\,N_a$

Offered in exchange for Q-goods

$x\,1/p$

$x\,f$

$f\,N_a$ Consumed

Q-sector

$x(1-\Pi_Q)$

Profits

P

$x\lambda_Q$

$\lambda_Q P$ Consumed

$x(1-\lambda_Q)/(w/p)$

Annual Production

Q

$x\,\Pi_Q/(w/p)$

Unproductive Population

$N_{(Q-q)}$

$q\,N_{(Q-q)}$ Consumed

$x\,q$

$x\,f/p$

$f/p\,N_{(Q-q)}$

Offered in exchange for A-goods

$x\,p$

$x\,\beta$ Productive Population

N_q

$x\,f/p$

$f/p\,N_q$

Offered in exchange for A-goods

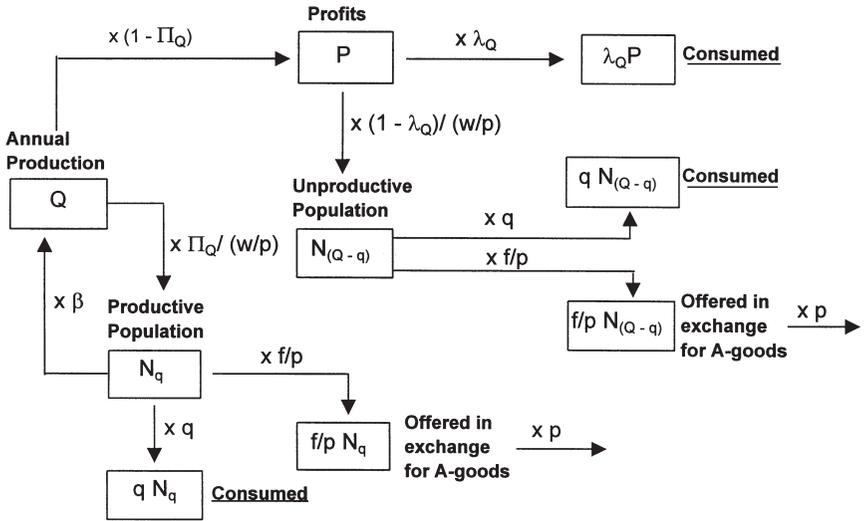$x\,p$

$x\,q$

$q\,N_q$ Consumed

Figure 3.1 Distribution of product in each sector

for example, lords increase π_A, raising the proportion of last period's output devoted to employing productive labor. Current production increases, but current expenditure on unproductive labor and/or luxuries must decrease. Since the current wage-rate in the A sector must be the total portion of F_{t-1} assigned to employment divided by N_A, then

$$w_t = [1 - \pi_A(1-\lambda_A)].F_{t-1}/N_A \tag{3}$$

and likewise, for the Q sector

$$w_t/p = [1 - \pi_Q(1 - \lambda_Q)].Q_{t-1}/N_Q \tag{4}$$

Since in the short period, when total population is given

$$N = N_A + N_Q \tag{5}$$

(3), (4) and (5) form three simultaneous equations in w_t, N_A and N_Q. If π_A is increased in order to divert a larger proportion of the A-sector workforce into current production, F_t will increase by (1). But by (3), (4) and (5) w_t will also increase (though not by as much, proportionately, as π_A), and the A-sector will therefore gain population from the Q sector in order to equalize wages. Because growth of the A sector will increase demand for Q-goods, there will also be an induced increase in Q-sector output, in a manner to be analyzed in due course by means of the complete model.

If the wage-rate exceeds a socially-determined "subsistence" rate w^*, that is where $w > [w^* = (f + pq^*)]$, population will increase and vice versa. Thus for any value of the taste parameter q^* there exist unique, steady-state, simple-reproduction degrees of parsimony, $\pi_A^* = w^*/\alpha$ and $\pi_Q^* = w^*/p\beta$. If parsimony exceeds these values the resulting capital formation will raise both output and wages, and the latter will cause population to increase. Suppose therefore that there had been a once-for-all increase in demand for the F-sector, beginning from a position of steady-state simple reproduction. Initially $\pi_A > \pi_A^*$ causing output and wages to rise, and some population to move from the Q to the A sector. But total population would begin to grow in consequence of the wage-increase. As population grows with constant production at the new, higher level, wages begin to fall again. Now in order to keep production constant with a growing work-force employers must reduce the degree of parsimony. When $w = w^*$, $\pi_A = \pi_A^*$ and $\pi_Q = \pi_Q^*$, the process of adjustment is at an end. Population and production in each sector are higher, and the share of income assigned by lords and masters to unproductive labor and luxury consumption has returned to its original proportion.

It appears from this analysis that a model may be constructed of the "long-period" general equilibrium of A and Q sectors, when "long-period" is construed to mean, *when population is stationary at any particular w^*.* Provided only that producers respond to once-for-all changes in demand in the manner outlined, the equilibrium degrees of parsimony, π_A^* and π_Q^*, are determined by the taste parameter q^* (the socially-determined component of the subsistence real wage devoted to the purchase of luxuries); and transitory, disequilibrium values of π may be ignored for purposes of comparative statics.

Construction of the two-sector model in population equilibrium

Demand for F-goods by the A sector alone, given that $F = \alpha.N_a$, may be conceived as the sum of S_0, the value of the agricultural surplus in a purely

manorial (one-sector) economy – an "initial condition" or historical constant – and the wage-bill for productive labor:

$$F_A^D = S_0 + w^*N_a = S_0 + (w^*/\alpha).F \tag{6}$$

Demand for F-goods by the Q sector is the food requirement of the total Q-sector population:

$$F_Q^D = fN_Q = fN_q + fN_{(Q\text{-}q)} \tag{7}$$

In population equilibrium the unproductive Q-sector population, $N_{(Q\text{ - }q)}$, must be equal to the Q-goods assigned to it, $(1 - \pi_Q^*)(1 - \lambda_Q).Q$ divided by the subsistence wage, w^*/p. Hence, given that $Q = \beta.N_q$,

$$F_Q^D = \{f/\beta + [fp(1 - \pi_Q^*)(1 - \lambda_Q)]/w^*\}.Q \tag{8}$$

Let the net foreign demand for F-goods be X, then total demand for A-sector goods is

$$F^D = S_0 + (w^*/\alpha).F + f[1/\beta + (p/w^*)(1 \text{ -}\pi_Q^*)(1 - \lambda_Q)].Q + X \tag{9}$$

And at equilibrium of production, when $F = F^D$,

$$- a_1.F + a_2.Q = - (S_0 + X) \tag{10}$$

where, when w^* is interpreted as $(f + pq^*)$ and π_Q^* as $(f + pq^*)/p\beta$, and when it is noted that $\alpha > w^*$ and $\beta > w^*/p$, $a_1 = [(\alpha - f - pq^*)/\alpha] > 0$, and $a_2 = \{[(f + pq^*)^{-1}.fp(1 - \lambda_Q)] + f\lambda_Q/\beta\} > 0$.

Demand for Q-goods by the A sector is the sum of the luxury-goods requirement of the A-sector population and the Q-goods value of the food that lords desire to exchange for luxury goods for their own consumption:

$$Q_A^D = q^*N_A + \lambda_A(1 - \pi_A^*).F/p \tag{11}$$

Since by reasoning similar to that employed above in that case of N_Q above, it can be shown that $N_A = \{1/\alpha + [(1 - \pi_A^*)(1 - \lambda_A)]/w^*\}.F$, then

$$Q_A^D = [q^*/\alpha + (q^*/w^*)(1 - \pi_A^*)(1 - \lambda_A) + (\lambda_A/p)(1 - \pi_A^*)].F \tag{12}$$

Demand for Q-goods by the Q sector is the sum of the luxury-goods requirement of the Q-sector population and the quantity of luxury goods that masters desire to consume themselves:

$$Q_Q^D = q^*N_Q + \lambda_Q(1 - \pi_Q^*).Q \tag{13}$$

Given that $N_Q = [1/\beta + (p/w^*)(1 - \pi_Q^*)(1 - \lambda_Q)].Q$

$$Q_Q^D = [q*/\beta + (pq*/w*)(1 - \pi_Q*)(1 - \lambda_Q) + \lambda_Q(1 - \pi_Q*)].Q \qquad (14)$$

Thus from (12) for Q_A^D and (14) for Q_Q^D, total demand for Q-sector goods,

$$Q_D = [q*/\alpha + (q*/w*)(1 - \pi_A*)(1 - \lambda_A) + (\lambda_A/p)(1 - \pi_A*)].F$$
$$+ [q*/\beta + (pq*/w*)(1 - \pi_Q*)(1 - \lambda_Q) + \lambda_Q(1 - \pi_Q*)].Q \qquad (15)$$

Let the import of Q-goods be *M*. Then at equilibrium of production, when $Q + M = Q^D$,

$$b_1 F - b_2 Q = M \qquad (16)$$

where, when $w*$ is interpreted as $(f + pq*)$, π_A* as $(f + pq*)/\alpha$ and π_Q* as $(f + pq*)/p\beta$, and when it is noted that $\alpha > w*$ and $\beta > w*/p$,

$$b_1 = \{[p(f + pq*)]^{-1}.(pq* + f.\lambda_A)\} - (f.\lambda_A)/(\alpha p) > 0, \text{ and}$$

$$b_2 = 1 - pq*(1 - \lambda_Q)/(f + pq*) - [1 - f/(p\beta)].\lambda_Q > 0.$$

Equations (10) and (16) together produce the matrix equation

$$\begin{bmatrix} -a_1 & +a_2 \\ +b_1 & -b_2 \end{bmatrix} \bullet \begin{bmatrix} F \\ Q \end{bmatrix} = \begin{bmatrix} -(S_0 + X) \\ +M \end{bmatrix} \qquad (17)$$

or more compactly,

$$\mathbf{J.V = C} \qquad (17A)$$

where $Det\, \mathbf{J} = \mathbf{\Delta} = (a_1 b_2 - a_2 b_1)$, and $Tr\, \mathbf{J} = (-a_1 - b_2)$.

If we specify output adjustment in the usual Samuelsonian way as

$$dF/dt = h(F^D - F); \ h > 0 \text{ and} \qquad (18)$$
$$dQ/dt = j(Q^D - Q); \ j > 0 \qquad (19)$$

it can be shown that the out-of-equilibrium adjustment time-paths will be non-oscillatory; and that the system will be stable if $Det\, \mathbf{J} > 0$ and $Tr\, \mathbf{J} < 0$. Given the positivity of a_1, a_2, b_1 and b_2, the trace condition is apparent, but the determinant condition not so. Since, as will appear from Figure 3.2, the determinant stability condition is also necessary for existence of positive solutions, it will be assumed.

Comparative statics

Equation (17) affords solutions for the long-period equilibrium values of F and Q in the usual way:

$$F = \Delta^{-1} [b_2(S_0 + X) - a_2M] \text{ and} \tag{20}$$

$$Q = \Delta^{-1} [b_1(S_0 + X) - a_1M] \tag{21}$$

from which it is evident that both *F* and *Q* are positively related to *X* and negatively related to *M*, which is both intuitively obvious and trivial. The more interesting comparative-statics questions relate to changes in the behavioral parameters, for it is upon these that much of what is now regarded as "economic thought" in the eighteenth century may be seen to have turned. Mandeville, Hume, Tucker, Smith and Paley were deeply interested in the causal nexus between the spread of a taste for "luxury"– both among lords and masters and among the common people – and the economic development of a market society. Their thinking may be captured to a certain extent by comparative-statics exercises with (17), in particular by analysis of the effect of changes in the taste parameters λ_A, λ_Q and q^*. Because it is usual to suppose that masters were less interested in luxury than were lords (and because the qualitative effect of a change in λ_Q is the same as that of a change in λ_A) we need only consider λ_A.

The four coefficients are functions of q^*, and b_1 is also a function of λ_A.

$$a_1 = a_1(q^*): \ \partial a_1/\partial q^* = -p/\alpha < 0$$

$$a_2 = a_2(q^*): \ \partial a_2/\partial q^* = -fp^2/(w^*)^2 < 0$$

$$b_1 = b_1(q^*, \lambda_A): \ \partial b_1/\partial q^* = f(1 - \lambda_A)/(w^*)^2 > 0$$

$$\partial b_1/\partial \lambda_A = f(\alpha - w^*)/(\alpha p w^*) > 0$$

$$b_2 = b_2(q^*): \ \partial b_2/\partial q^* = -fp(1 - \lambda_Q)/(w^*)^2 < 0$$

Then by partial differentiation of (20) and (21) with respect to each of λ_A and q^* we obtain:

$$\partial F/\partial \lambda_A = -\Delta^{-2} [b_2(S_0 + X) - a_2M].\partial \Delta/\partial \lambda_A \tag{22}$$

$$\partial Q/\partial \lambda_A = -\Delta^{-2} \{\Delta(S_0 + X)\partial b_1/\partial \lambda_A - [b_1(S_0 + X) - a_1M].\partial \Delta/\partial \lambda_A\} \tag{23}$$

where $\partial \Delta/\partial \lambda_A = -a_2.\partial b_1/\partial \lambda_A < 0$. It is thus evident that in a closed economy [$X = M = 0$] (22) and (23) are unambiguously positive. They are also positive in an open economy upon the assumption that positive solutions exist for *F* and *Q* in (20) and (21). A once-for-all increase in the lords' degree of luxury brings about an increase in population and in production both of food and of luxuries, at long-period equilibrium. In the absence of any corresponding change in taste on the part of laborers, real wage is constant in population equilibrium, though it will have remained above w^* during the transition from one equilibrium to another.

By partial differentiation of (20) and (21) with respect to q^* we obtain:

$$\partial F/\partial q^* = \Delta^{-2}\{\Delta[(S_0 + X).\partial b_2/\partial q^* - M.\partial a_2/\partial q^*]$$

$$- [b_2(S_0 + X) - a_1M].\partial \Delta/\partial q^*\} \tag{24}$$

and

$$\partial Q/\partial q^* = \mathbf{\Delta}^{-2}\{\mathbf{\Delta}[\,(S_0 + X)\,.\partial b_1/\partial q^* - M.\partial a_1/\partial q^*]$$
$$- [\,b_1(S_0 + X) - a_1M]\,.\partial\mathbf{\Delta}/\partial q^*\} \tag{25}$$

where

$$\partial\mathbf{\Delta}/\partial q^* = a_1.\partial b_2/\partial q^* + b_2.\partial a_1/\partial q^* - a_2.\partial b_1/\partial q^* - b_1.\partial a_2/\partial q^* \tag{26}$$

The sign of (26) is seemingly ambiguous, as are those of (24) and (25). Equation (26) would be negative if

$$b_1.\partial a_2/\partial q^* < a_1.\partial b_2/\partial q^* + b_2.\partial a_1/\partial q^* + a_2.\partial b_1/\partial q^* \tag{27}$$

which seems probable but is not necessarily the case. And when (26) < 0, then $\partial Q/\partial q^*$ is unambiguously positive. Even in that case though the sign of $\partial F/\partial q^*$ remains in doubt.

However it appears that the likelihood of positive signs for (24) and (25) is the greater the smaller is the value of q^*, and vice versa. In the extreme case where $q^* = 0$, (24) and (25) are positive, and (26) negative. The reason for these puzzling results is that at high levels of q^* a further increase, by raising the subsistence wage-rate w^*, would tend to inhibit that population growth which would otherwise take place during the period of transition when the market real wage is higher than w^*. It is conceivable that the depressing effect upon population of a rise in w^* could outweigh the effect upon population and production of an increased demand for luxuries. This was clearly recognized by Paley, who viewed population as an index of social welfare to be maximized.

> It appears, then, that luxury, considered with a view to population, acts by two opposite effects; and it seems probable that there exists a point in the scale, to which luxury may ascend . . . beyond which the prejudicial consequences begin to preponderate. The determination of this point [may] assume the form of an arithmetical problem.
>
> Paley ([1785] 1825, vol. 4: 486)

I have determined this "point" in a simple version of the present model (Waterman 1996). The conclusion of this analysis is therefore that a once-for-all increase in the taste for luxury of laborers would tend to increase production of food and luxuries, but that as q^* rises population would rise more slowly and might actually fall; in which case first F and then Q would pass their maxima and begin to decline.

Diagrammatical analysis

Much of the foregoing is easily illustrated by the means of the diagram in Figure 3.2. Let us re-write (10) and (16) as:

$$F = (a_1)^{-1}(S_0 + X) + \theta.Q \text{ and} \tag{10A}$$

$$Q = -(b_2)^{-1}M + \phi.F \tag{16B}$$

where $\theta = a_2/a_1$ and $\phi = b_1/b_2$. It is apparent that the geometrical requirement that $\phi^{-1} > \theta$ is satisfied by the determinant stability condition. The $F(Q)$ locus, of intercept $F_0 = S_0/a_1$ and slope θ, describes (closed-economy) production and population equilibrium in the A sector; the $Q(F)$ locus, of intercept zero and slope ϕ, describes (closed economy) production and population equilibrium in the Q sector. Their intersection in A determines the F,Q pair at which there is general equilibrium of population and production. If exports are made from the A-sector the intercept of $F(Q)$ is increased and the curve shifts upwards. If imports of Q-goods are made the intercept of $Q(F)$ is reduced and the curve shifts to the left.

If there is an increase in lords' degree of luxury the $F(Q)$ locus is unaffected. But because

$$\partial\phi/\partial\lambda_A = (b_2)^{-1}.(f/p).(\alpha - w^*)/\alpha w^* > 0 \tag{28}$$

(since α must exceed w^* for a surplus to exist), the $Q(F)$ locus will rotate clockwise illustrating the resulting increase in both Q and F.

If there is an increase in laborers' taste for luxury, the intercept of the $F(Q)$ will increase since a_1 decreases as q^*, and this shift captures the expansionary effect upon the A-sector of increased demand per capita.
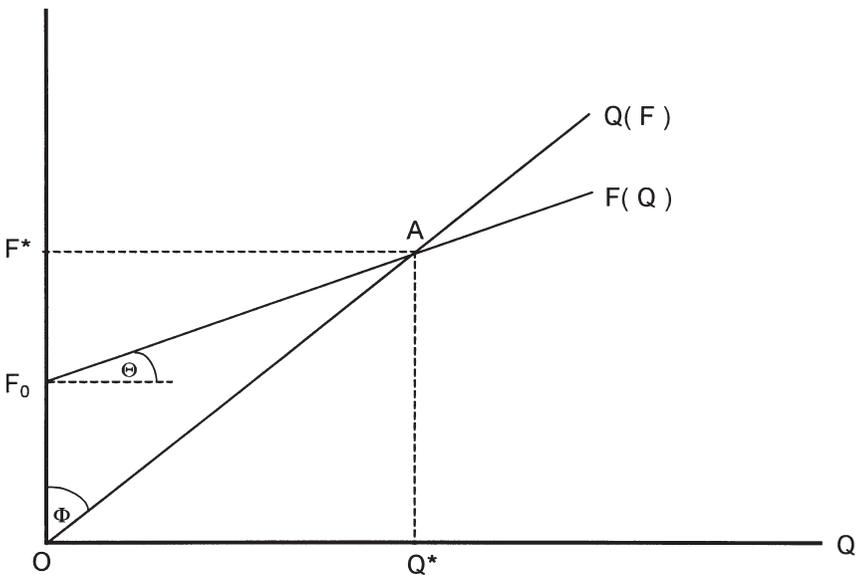

Figure 3.2 Interdependence of food and luxury production in population
equilibrium