

**THE CLASSIFICATION OF CAPITAL AND
REVENUE IN ACCOUNTING AND
THE DEFINITION OF INCOME IN
THE MARKET-PLACE**

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THE CLASSIFICATION OF CAPITAL AND REVENUE IN ACCOUNTING

and the

DEFINITION OF INCOME IN THE MARKET-PLACE¹

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ABSTRACT

Over many years various accounting authorities have grappled with the problem of appropriate recognition and classification of income and expenditure items in the preparation of financial statements. One obvious case in point is the distinction between the ordinary revenue and capital gain nature of transactions; another is the inter-period allocation of expenditure. To a large extent, accounting attempts to resolve these issues by relying upon the statement preparer's subjective judgments. That approach has implications for other disciplines, such as taxation. Perpetuation of accounting's imprecision is attributable to the inadequacy of the criteria used by prevailing accounting statements and conventions. This paper demonstrates that the market place itself can resolve these concerns. In doing so, it renders the accounting doctrine of accrual superfluous. The paper also develops and proves the direct relationship between the traditional Schanz-Haig-Simons definition of income and the present value formula, which is the foundation of the market approach to classifying transactions correctly.

1 Introduction

The distinction between the capital and revenue nature of transactions is a basic concept in the preparation of financial accounts and there is an extensive literature on the location of the capital-revenue boundary. Various authorities have issued guidelines to assist accountants in grappling with this problem.⁴

The classification of a transaction or a financial event as on capital account or as on revenue account can have legal implications that accountants and courts have long struggled with. The legal issues impact upon an entity's tax liability and its dividend policy. The distinction also affects the interest of an income beneficiary of a trust and the remainderman's interest against the trust's corpus. There can be an economic impact of the classification upon the value of a corporation's stock. These effects are all examples of the broad problem of establishing adequate criteria to classify financial items and applying those criteria in the preparation of financial statements.

The burden of this paper is that the market-place itself resolves the location of the capital-revenue boundary in a way that has gone unrecognized⁵. We show how this market placement of the boundary occurs and how it can be applied. To be conceptually robust, accounting practice and law (especially tax law) should embody the market method.

In the great majority of cases the market determined criteria provide the same classifications of transactions as do present accounting conventions. However, in addition the proposed method provides a clear-cut resolution to the problem of classifying financial items that have ambiguous classifications on existing accounting or legal criteria.

⁴ Typically national professional accounting associations have adopted a conceptual "framework" as the basis upon which financial statements are to be prepared and presented, e.g. Financial Accounting Standards Board, (1985) (United States); Accounting Standards Board, (1999) (United Kingdom); and Australian Accounting Standards Board, (2004) (Australia). Since these pronouncements draw upon, or largely correspond with, International Accounting Standards Board, (2001), hereafter this paper refers only to the IASB Framework.

⁵ Except in McCann and Butcher (2006, 2008).

One particular aspect of our approach, which has not been recognized in the literature, is of special interest. This is the very close relation that we develop between the Schanz-Haig-Simons (SHS) definition of income and the present value formula, which is the foundation of the market approach to classifying transactions. We will explore the significant consequence of the direct connection between the SHS concept of income and the present value formula, *viz.* that asset markets equilibrate on a concept of income. However, we will show that the SHS definition, *qua* definition, is not required to answer questions about which items constitute “income” and which are “capital”. This is a fundamental conclusion for accountants, which adds to the veracity of financial statements that are prepared on a current price basis.

The paper will also plumb the relation between the market’s notion of “income” and the accounting doctrine of accrual expenditure. That doctrine will be shown to be superfluous.

At the formal level, the paper requires that assets, in particular businesses, may be priced by present value techniques. The starting point of the paper in this and in other respects is Samuelson’s 1964 classic.

Section 2 discusses the theoretical concept of income and its relevance to accounting. Existing accounting conventions concerning the distinction between capital and revenue receipts and expenditure are addressed in Section 3. Section 4 furnishes examples of our proposed procedure for classifying a financial item as capital or revenue. Section 5 is the core formal material. The close connection between SHS income and the present value formula is established there and the formal classification criteria that rest on that connection are presented. In addition, Section 5 derives the concept of income that is adopted in the market place. The redundancies of each of the SHS definition and of the doctrine of accrual expenditure are examined in Section 6. Our conclusions are presented in Section 7 of the paper. An Appendix contains the mathematical formalism incorporating taxation.

2 Concept of Income

2.1 SHS Definition of Income⁶

The first authoritative contribution to the conceptualisation of income was provided in 1896 by the German economist, Georg von Schanz. With respect to an individual, von Schanz (1896) contended that:

[t]he concept of income is related to the economic ability of persons. When we wish to determine an individual's income, we must ask what economic power has accrued to a given person over a given period of time. In other words, we wish to know what means came within the disposing power of the given person, who, during the period in question, neither impaired his capital nor incurred personal debts.⁷

Twenty-five years later, in the United States, and ostensibly independently of von Schanz's work, Robert Murray Haig proceeded to define income as (Haig (1921: 7)):

the increase or accretion to one's power to satisfy his wants in a given period so far as that power consists of (a) money itself, or, (b) anything susceptible of valuation in terms of money.

The elements susceptible to monetary valuation that enhance one's power to satisfy wants necessarily include any good or service obtained in kind (whether consideration was given or it was obtained by way of gift), which can be valued in money terms, any unrealised increase in the value of assets held during the period, and the value of benefits obtained from non-market transactions. Algebraically, this notion of income during a period can be expressed as:

$$\begin{aligned} & \text{MONEY RECEIVED AS RETURNS FROM FACTORS OF PRODUCTION} + \text{IN-KIND} \\ & \text{BENEFITS} + \text{NET MONETARY INCREASE IN ASSET VALUES} + \text{IMPUTED INCOME} \\ & \text{FROM NON-MARKET TRANSACTIONS} \end{aligned}$$

⁶ Generally, the wealth approach to income analysis has been coined, in jurisprudential and public policy literature, the Schanz-Haig-Simons (or, more commonly, in United States publications, simply the "Haig-Simons") concept of income: see, for example, Andrews (1972). Like other writers who recognise Schanz's contribution, we adopt the term "Schanz-Haig-Simons" or "SHS" income.

⁷ Translated in Wueller (1938:102).

Haig (1921: 7) went on to refine his interpretation:

[m]ore simply stated, the definition of income which the economist offers is this: Income is the *money value of the net accretion to one's economic power between two points of time.*

(emphasis in original)

The increase in an individual's economic power, which satisfies desires over a period is central to Haig's definition of income.

In 1938, Henry Simons developed a similar concept of income to that of Haig, which is based upon changing values of rights over a relevant period. In Simons's view (Simons (1938: 49-50)):

[p]ersonal income connotes, broadly, the exercise of control over the use of society's scarce resources. It has ... to do with ... rights which command prices (or to which prices may be imputed). Its calculation implies estimate (a) of the amount by which the value of a person's store of property rights would have increased, as between the beginning and the end of the period, if he had consumed (destroyed) nothing, or (b) of the value of rights which he might have exercised in consumption without altering the value of his store of rights. In other words it implies estimate of consumption and accumulation ... Personal income may be defined as the algebraic sum of (1) the market value of rights exercised in consumption and (2) the change in the value of the store of property rights between the beginning and end of the period in question. In other words, it is merely the result obtained by adding consumption during the period to "wealth" at the end of the period and then subtracting "wealth" at the beginning.

Simons framed his formulation in terms of the value of property rights held by a person (that is, the ability to control resources and, therefore, to exercise economic power). Simons (1938: 49) initially adopts Haig's notion of income as an increase in the value of a person's property rights over a period on the assumption that the person "had consumed ... nothing". He states the same thing in an alternative way in

his point (b); that is, the value of property rights obtained during a period that a person *might have* exercised by way of consumption expenditure so that he is left no worse off than at the beginning of the period. In other words, income is the increase in the value of property rights *available* for consumption expenditure.

Simons maintained, correctly, that a literal interpretation of Haig's definition excludes consumption, although, according to Simons, it was obviously intended to be included within the concept.⁸ Simons (1938: 49) then takes Haig's analysis further by stating that income "implies estimate of consumption and accumulation" and formulates income algebraically in terms of those two variables:

$$Y_t = \Delta W_t + C_t$$

where: Y_t \equiv income in period t;
 ΔW_t \equiv change in wealth over the measurement period, t; and
 C_t \equiv consumption expenditure in period t.

Simons breaks down Haig's accrual of economic power into the two ways that it can be applied: (i) consumption expenditure and (ii) saving. Thus, Simons measures income at a later stage than Haig does. Under Simons's model, one must wait to see how Haig's *a priori* economic power is actually applied before income can be determined.⁹

⁸ Samuelson was also concerned (somewhat emotionally) with "the shocking looseness of the Haig definition of income as the 'accretion to wealth' between two periods [which] is of course to be modified ... to take into account consumption of the period in question": Samuelson (1961) in Lutz and Hague (1961:56). However, Haig's definition does not need to deal explicitly with consumption. Consumption arises *after* economic power has been obtained. For Haig, income is the accrual of economic power over a period. Income is determined when that power is accrued. Once that point is reached, nothing further is required to be done to identify income. Haig did not need to specify how that economic power is subsequently applied. For further analysis of this point, see Holmes (2001: 68-74).

⁹ Only consumption gives rise to this timing difference. Increase in economic power always occurs simultaneously with wealth accumulation.

2.2 Hicks's definition of income

Historically, accounting theorists have repeatedly paid lip service to Hicks's definition to measure income on the basis of source preservation.¹⁰ Hicks's analysis of income rests on an individual's expectations and plans (Hicks (1946: 172)):

The purpose of income calculations in practical affairs is to give people an indication of the amount they can consume without impoverishing themselves. Following out this idea, it would seem that we ought to define a man's income as the maximum value he can consume during a week, and still expect to be as well off at the end of the week as he was at the beginning.

Hicks's approach is to determine, in the mind of a consumer, how much the consumer can *plan* to spend during a period on the basis of the income stream yielded at the end of that period. The principle is similar to that expounded by Simons's (1938: 49) alternative view of income, viz. "the amount by which the value of a person's store of property rights *would* have increased, as between the beginning and the end of the period, if he has consumed ... nothing" (emphasis added).

Hicks illustrates his definition of income under varying circumstances: constant and changing interest rates and prices. In the simplest, but most common, case, an individual may invest in a security for one week, at the end of which she expects to receive \$x. Subject to the individual's preference for being better or worse off at the end of the period than she was at the beginning, her consumption expenditure during that week will be based on the expected receipt. Consequently, there is an amount of expenditure that will reduce the expected value of the individual's security to the amount invested at the beginning of the week. That amount is the individual's income. Thus, Hicks (1946: 177) postulates that "income is a subjective concept, dependent on the particular expectations of the individual in question."

¹⁰ Zeff (1962) has observed that this definition "recurs with remarkable frequency in economic and (especially) accounting writings." Surprisingly, reference is seldom made in the accounting literature to the Schanz-Haig-Simons definition of income. An exception is Fellows (1989) who does *allude* to the SHS concept of income.

Hicks (1946: 178) notes that “[n]othing is said about the realisation of this expectation”, and goes on to argue that, if the expectation is not realised exactly, a windfall profit or loss is derived. If that gain (or loss) is added to (or subtracted from) *ex ante* income, corresponding *ex post* income can be calculated; that is, income including windfall gains or losses. Therefore, in the simple and common case, income *ex post* equals the value of an individual’s consumption plus the increment in the value of her investment during the week. Hicks’s notion of *ex post* income can be expressed arithmetically as:

$$\text{INCOME } ex\ post = \text{CONSUMPTION} + \text{CAPITAL ACCUMULATION}$$

The attraction of *ex post* income is that it is capable of reasonably objective measurement (provided that changes in the value of human capital are ignored). However, for Hicks (1946: 179), *ex post* income calculations “have their place in economic and statistical *history*.” (emphasis in original). Hicks was a theoretical behavioural economist. *Ex post* calculations were not useful his predictions of conduct. *Ex post* income can only be calculated at the end of Hicks’s week. He was concerned with an individual's economic behaviour *during* the week. Therefore, he concluded that (Hicks (1946: 179)):

The income which is relevant to conduct must always exclude windfall gains; if they occur, they have to be thought of as raising income for future weeks (by the interest on them) rather than entering into any effective sort of income for the current week, Theoretical confusion between *ex post* and *ex ante* corresponds to practical confusion between income and capital.

2.3 Corporate income measurement

Accountants generally examine the notion of income in the context of a business entity, which is owned by other entities, including individual people. Hicks’s income definition was cast in terms of an individual. Accounting theorists have applied the definition to business undertakings.

Alexander (1962) made the first significant reference to Hicks’s definition of income in a corporate context: income is “the amount [a] company can distribute to

shareholders and be as well off at the end of the year as it was at the beginning". Subsequently, income definitions for accounting purposes included specific reference to capital maintenance. Fellows (1989: 5) observed that:

[T]he net income of an entity for any period is the maximum amount that can be distributed to its owners during the period and still allow the entity to have the same net worth at the end of the period as at the beginning, after adjusting for the owner's contributions. In other words, capital must be maintained before an entity can earn income.

The Hicksian and Simons concepts of income specifically refer to an individual's consumption expenditure. Simons's and Hicks's *ex post* interpretations of an individual's income are the sum of consumption and changes in wealth (after consumption has taken place). Applying those interpretations to a company, income could be regarded as the sum of dividend distributions to shareholders plus *net* changes in equity (after the dividend distributions). Hence, dividend distributions to shareholders of a company correspond to consumption expenditure of an individual. Hence, Fellows's reference to "the maximum amount that can be distributed to its owners" (Fellows (1989: 5)) in place of Hicks's reference to "the maximum value he [an individual person] can consume" (Hicks (1946: 172)).

Similarly, Haig's formulation of the concept of income could also be interpreted in a corporate context. For an individual, Haig analysed income in terms of wealth accumulation *before* consumption expenditure occurred. Transposing this notion to a corporate context, a company's income is the increase in its total equity over its reporting period before distributions to shareholders are taken into account. Thus, Haig's interpretation of income simply means that one can avoid the need to adjust aggregate changes in equity for dividend distributions. However, we will reconsider the difficulties of this approach in Section 6.1.

Alexander's and Fellows's interpretations of accounting income clearly contemplate Hicks's *ex post* notion of income. Accounting theorists generally ignore the expectations aspect of Hicks's definition of income. Definitions of income in accounting literature occasionally cite Hicks's reference to one's expectation of well-

offness at the end of a measurement period, but invariably the premise of the definition is Hicks's *ex post* income; that is, an historic measure of income, which encompasses actual gain and loss deviations from expectations. Performance measurement for accounting purposes is not subject to the constraints of expectations.

It is, perhaps, of little consequence that accounting literature ignores the *ex ante* basis of Hicks's definition. The fundamental issue is that accounting scholars have decided that the capital maintenance notion underlying Hicks's definition is the theoretically appropriate basis for interpreting the meaning of accounting income. For example, the Financial Accounting Standards Board in the United States formally embodied this capital maintenance, or net accretion, notion in its Statements of Financial Accounting Concepts (Financial Accounting Standards Board (1991: 775)):

[a]n enterprise receives a return only after its capital has been maintained or recovered. The concept of capital maintenance, therefore, is critical in distinguishing an enterprise's return *on* investment from return *of* its investment. Both investors and the enterprises in which they acquire an interest invest financial resources with the expectation that the investment will generate more financial resources than they invested.

(emphasis in original)

Hicks's *ex post* income is closer to the SHS concept than his *ex ante* notion. A more rigorous analysis of Hicks's work by accounting commentators may have led them formally to place greater emphasis on his *ex post* income notion, or it even may have led them to take greater cognisance of the SHS theory of income.

3 Accounting Conventions on Capital and Revenue

3.1 Income

Net income is the generally accepted measure of financial performance of a commercial entity. Because modern accounting theory predicates that income over the life of an entity is broadly the excess of the cashed-up value of the entity at its

termination over the owners initial cash investment,¹¹ it is necessary to divide the life of the entity into pre-determined time periods, which are short enough to render useful information to decision makers, but long enough to outweigh the administrative costs of compiling information reports too often. Accounting segments the entity's life-long income into each of those periods. This means that income is measured in an artificial way, which requires a subjective inter-period allocation of the entity's cash flows.¹²

The fundamental problem with the accounting treatment of income and gains therefore arises from the nature of accounting itself. As the United States Wheat Committee (a special committee of the American Institute of Certified Public Accountants charged with studying how accounting principles should be determined) reported as long ago as 1972 (Wheat Committee (1972: 19):

Financial accounting and reporting are not grounded in natural laws as are the physical sciences, but must rest on a set of conventions or standards designed to achieve what are perceived to be the desired objectives of financial accounting and reporting.

Accounting income measurement then somewhat incoherently adopts a combination of the concepts of historic cost based realisation, and matching expenditure with the benefits that it is intended to produce over time, and, in accordance with selected criteria, the conflicting concept of fair value accounting (i.e. embracing unrealised gains and losses).

In fact, the real focus of accounting income measurement is not on SHS or Hicksian wealth accrual at all. The starting point is realisation of revenue or expenditure based on exchange transactions with third parties. Year-end inter-period allocations of revenue and expenditure (*i.e.* cash flows) are made when the benefits or costs of a transaction cross more than one accounting period. Thus, objectively ascertainable income over the life of an entity must be apportioned on an *ex ante* basis to set time

¹¹ Adjusted for payments to owners (being additions in calculating income of the entity) and additional contributions from owners (being subtractions in calculating the entity's income).

¹² As Obinata (2001) puts it: "earnings is regarded as core information in the disclosure system, though it is derived from the artificial allocation of cash flows".

periods. Dissecting life-long income in this way involves estimation and assumptions about specific periods. Periodic income measurement thus becomes partly a subjective exercise.

Therefore, the accounting approach to measuring net income for the period under review is in terms of the difference between revenue and expenditure, after taking account of the income and expenditure accrual adjustments.¹³ A further adjustment to that net income figure is made to reflect unrealised changes in values of the selected assets held at the end of the measurement period. Thus, although accountants have claimed to adopt the Hicksian *concept* of income, they have traditionally *measured* income primarily on a realisation basis: the conceptual approach and the measurement approach are incoherent.

Furthermore, accounting conventions that address capital and revenue differ depending upon whether the focus is on income or expenditure. To a large extent the distinction between capital and revenue on the income side of accounting profit determination comes down to a question of presentation, rather than any matter of a conceptual nature. If we take the *Framework for the Presentation and Preparation of Financial Statements* (the Framework), published by the International Accounting Standards Board (IASB), as an authoritative statement on the meaning and recognition of income and expenditure, and their presentation for accounting purposes, we learn that income is (IASB (2001: §70(a))):

increases in economic benefits during the accounting period in the form of inflows or enhancements of assets or decreases of liabilities that result in increases in equity, other than those relating to contributions from equity participants.¹⁴

¹³ The literature well establishes that the net income figure can be manipulated through “discretionary accruals”: see, for example, Subramanyam (1996).

¹⁴ An asset is defined in §49(a) of the Framework as “a resource controlled by the entity as a result of past events and from which future economic benefits are expected to flow to the entity” in subsequent accounting periods. Assets are recognised in the balance sheet when “it is probable that the future economic benefits will flow to the entity and the asset has a cost or value that can be measured reliably.” (§89). A liability is defined in §49(b) of the Framework as “a present obligation of the entity arising from past events, the settlement of which is expected to result in an outflow from the entity of resources embodying economic benefits.” Liabilities are recognised in the balance sheet when “it is probable that an outflow of resources embodying economic benefits will result from the settlement of a present obligation and the amount at which the settlement will take place can be measured reliably.”

The Framework then goes on to break down its definition of income into two parts: revenue and gains. The distinction between these two elements turns on ordinary (and, by default – in layman’s parlance – extraordinary) activities of the reporting entity. IASB (2001: §§74, 75) puts it this way:

Revenue arises in the course of the ordinary activities of an entity

...

Gains represent other items that meet the definition of income and may, or may not, arise in the course of the ordinary activities of an entity. Gains represent increases in economic benefits and as such are not different in nature from revenue.

IASB (2001: §75) gives sales, fees, and passive income flows as examples of revenue. Gains on the disposal of non-current assets and unrealised gains from the revaluation of marketable securities and long-term assets are offered as examples of the types of gains that are contemplated by the Framework (IASB (2001: §76)).

In terms of presentation in the financial statements, IASB (2001: §76) observes that “[w]hen gains are recognised in the income statement, they are usually displayed separately ...”.

In summary, then, the accounting approach is to embrace all revenue and gains within the concept of income, and, based on a judgment of what constitutes the entity’s ordinary activities, to disclose revenue and gains separately in the financial statements. The critical factor from an accounting perspective is that separate disclosure of gains is made to the users of the financial statements. Separate disclosure of the gains provides useful knowledge to the users for the purpose of their economic decision making concerning the reporting entity. However, the identification of an entity’s ordinary activities to make the separate disclosure is necessarily a subjective one. That subjectivity has wider implications; for example, it is a factor that influences whether or not a gain is taxable in jurisdictions where taxes

(§91). Equity is defined in §49(c) of the Framework as “the residual interest in the assets of the entity after deducting all of its liabilities.” This definition produces the familiar “accounting equation”, *Equity = Assets – Liabilities*.

on capital gains do not exist or, where they do exist, whether a particular gain is to be treated as a capital gain or as ordinary income (each of which may be taxed at different rates).¹⁵ In other words, in such cases the accountant's judgment influences whether the gain is taxable, and that discretion undermines the equity and certainty tenets of a good income tax system.

There is also a further, more fundamental, issue related to the recognition of income in accounting. IASB (2001: §92) prescribes that “[i]ncome is recognised in the income statement when an increase in future economic benefits related to an increase in an asset or a decrease of a liability has arisen that can be measured reliably.” Therefore, recognition of income is restricted to “those items that can be measured reliably and have a sufficient degree of certainty” (IASB (2001: §93)). Thus, even before addressing the question of whether income is on revenue or capital account, the accountant must form an opinion about whether the income is to be reported in the accounting period in the first place. This means that the accountant is required to ascertain whether economic benefits related to an increase in an asset (or a decrease of a liability) have arisen in the reporting period and, if so, whether those benefits can be measured reliably. The subjectivity inherent in these accounting rules means that accounting itself cannot resolve the uncertainty that surrounds the numbers that it produces.

3.2 Expenditure

While the capital-revenue distinction can be problematic on the income side of the profit calculation, the issue is more acute on the expenditure side of the equation. IASB (2001: §70(b)) defines expenses as:

decreases in economic benefits during the accounting period in the form of outflows or depletions of assets or incurrences of liabilities that result in decreases in equity, other than those relating to distributions to equity participants.

¹⁵ See, for example, *Commissioner of Inland Revenue v. Thomas Borthwick & Sons (Australasia) Ltd* (1992) 14 NZTC 9,101 and *Federal Commissioner of Taxation v. Myer Emporium Ltd* (1987) 18 ATR 693.

Under the concept of accrual accounting, which is prescribed in the Framework as an assumption that underlies the preparation of financial statements IASB (2001: §§95-97):

[e]xpenses are recognised in the income statement on the basis of a direct association between the costs incurred and the earning of specific items of income. This process [is] commonly referred to as the matching of costs with revenues

When economic benefits are expected to arise over several accounting periods and the association with income can be only broadly or indirectly determined, expenses are recognised in the income statement on the basis of systematic and rational allocation procedures. ... These allocation procedures are intended to recognise expenses in the accounting periods in which the economic benefits associated with these items are consumed or expire.

An expense is recognised immediately in the income statement when an expenditure produces no future economic benefits or when, and to the extent that, future economic benefits do not qualify, or cease to qualify, for recognition in the balance sheet as an asset.^[16]

Whether expenditure is wholly or partly allocated to the current accounting period and treated as revenue expenditure or capitalised into the cost of an asset and allocated against income derived in future accounting periods again falls to the accountant's discretion. When the accountant decides on capitalisation of an item of expenditure, further judgment must then be exercised to determine the length of the expense amortisation period, and the amount of expenditure to be amortised in each reporting period so long as (at least some of) the expenditure remains capitalised as an asset in the balance sheet. To make those decisions, the accountant must make some estimate of the life of the benefit that is expected to arise from the expenditure, the amount of any residual value at the end of the useful life of the asset, and the method by which the amount to be allocated to each reporting period will be

¹⁶ An expense is recognised in the income statement "when a liability is incurred without the recognition of an asset ..." (IASB (2001: §98)).

calculated. In accounting, subjectivity pervades the distinction between capital expenditure and revenue expenditure. Thus, uncertainty of accounting numbers persists.

Again, the uncertainty embodied in the accounting approach to expense classification infects other disciplines, which rely to a greater or lesser extent on accounting results to achieve their ends. For example, to the extent allowed by law, reliance on the accounting treatment of expenses for income tax purposes leaves determination of taxable income vulnerable to the vagaries of the expense allocation process adopted by the accountant. The quirks of accounting then impact upon the sturdiness of the income tax system.

4 Market Methodology

The authorities on capital and revenue reviewed in Section 3 covered a wide variety of cases and circumstances. Generality of treatment forced them into abstractions at a philosophical level of discourse. We are to offer an alternative to such discourse: our approach is rooted in the market-place rather than in abstractions.

The commercial intuition that underpins our approach to the capital-revenue boundary is set down by way of examples in the present section. The normal haggling in the market place is the foundation of the whole approach and is used throughout Section 4. Formal criteria for separating capital from revenue transactions will be developed from the commercial intuition in a slightly more general form in Section 5.

4.1 Commercial Intuition

Readers will be familiar with the present value method of pricing an asset. Recall that by this method the price of an asset is set by the discounted value of its future income stream. Since the use of the word “income” may prejudice issues we will use the neutral term “net rentals” instead. Under the present value method buyer and seller necessarily agree on the stream of future net rentals when they agree on the price of an asset. It will be shown in the next section of the paper that under ideal circumstances the present value formula does in fact provide the market price of an asset.

Ideally, a business can be valued or priced by a discounted net rental stream that is to be mutually agreed upon by the buyers and sellers of the business. A particular transaction either appears in that agreed net rental stream or it does not. We can thus classify one group of transactions as those that are included in the mutually agreed net rental stream. A second group consists of transactions that are excluded from the mutually agreed future net rental stream. Every transaction belongs either to the first group or the second. The classification is exhaustive.

We propose to classify items that are *included* in the mutually agreed net rental stream as revenue account items. Transactions that are *excluded* from the mutually agreed net rental stream are to be classified as on capital account.¹⁷

Observe that on these definitions the market marks out the distinction between capital and revenue items. The capital-revenue boundary then ceases to be a matter of legal decisions, of accounting conventions or of tax practice. The location of the boundary is fixed in the market place.

The next few subsections provide simple examples of the application of the proposed method. They mostly conform to the classifications obtained by conventional criteria. This should buttress confidence in the method.

4.2 Revenue expenditure

Consider whether expenditure on electricity by a manufacturing concern is to be classified as a revenue item or as capital expenditure. It will not surprise that the method determines the electricity outlay to be a revenue expense, which is consistent with the accounting convention discussed in Section 3.

The procedure involves the setting up of a notional sale of the business which incurs the expenditure. Potential buyers and a potential seller must agree on the price of the business. In doing so, potential buyers and sellers discount their evaluations of the future net rental streams from the business.

¹⁷ There will be one exception to the exclusion from net rentals rule that will be discussed in Section 5.

Price agreement requires the potential buyer and seller arrive at the same present value for the discounted future net rental stream. They both must use the market rate of interest as the discount factor because it represents the opportunity cost of capital.¹⁸

To arrive at a common valuation the parties must agree on the net rental stream that is to be discounted. That is, they must agree on whether the electricity outlay is to be subtracted in the computation of the net rental stream or whether it is to be omitted from that flow altogether.

Let us suppose that the potential seller is of the view that the electricity outlay should **not** be deducted when computing the net rental stream. This would increase the seller's present value compared with subtracting the electricity outlay.

Potential buyers would not concur with this treatment of the electricity outlay. This is because the price of the business would rise by the present value of the omitted electricity outlays. Then, having taken the business over, a buyer would be faced with electricity bills in the future the present value of which has already been paid to the seller. That would result in a double payment for electricity.

Consequently, there would be no agreement on present value between a potential buyer and a potential seller of the business if electricity outlays were omitted from the net rentals. To this stage there is no classification of electricity payments as a revenue or as a capital item.

The alternative treatment is for the potential seller to deduct the electricity expenses in the net rental calculation. This reduces the seller's present value compared with exclusion and the buyer would then not be surprised by future electricity bills.

¹⁸ Contrary to common practice, a comprehensive income tax system does not result in a discount rate that is equal to the after-tax rate of interest. The appropriate discount rate is obtained by the method shown in the Appendix.

Thus potential buyers and sellers agree on the present value of the business when electricity outlays are included in the calculation of the net rental stream. Two things have happened: (A) potential buyer and seller have agreed on the present value of the business, and (B) electricity outlays are taken into account in calculating the agreed net rental stream.

When these two criteria are met we define the expenditure (or receipt) under test to be on revenue account. This is a roundabout confirmation of the conventional accounting treatment of revenue expenditure (such as electricity outlays), described in Section 3. Under the accounting tests there, the benefit of the electricity purchased is used up in the current accounting period and is therefore fully expensed (as revenue expenditure) in that period.

4.3 Capital expenditure

Some other outgoing may, by mutual agreement, be omitted from the calculation of the net rental stream. The parties would then agree on present value. We would have (a) agreement on present value, and (b) the item being omitted from the agreed net rental. In this circumstance we define the item to be on capital account.

Take a commitment to purchase a delivery truck by a manufacturing concern. Again, the method is to set up a notional sale of the business. We suppose that whoever owns the business accepts a commitment to buy a truck at the present or a future time. Possible buyer and possible seller calculate the present value of the business. Since it is the classification of the purchase price of the truck that concerns us, both parties, we suppose, agree that the truck contributes to future output and both include that contribution in the net rental stream.

Pretend that one party, say the buyer, subtracts the purchase price of the truck in calculating the net rental stream. This would depress a buyer's present value of the business compared with not subtracting the purchase price of the truck.

The seller would not agree to such a buyer's present value calculation. This is because buying the truck is a conversion of one asset into another, cash is converted into a truck. The wealth of the business has not changed except to the extent that the

truck may make a greater contribution to future output than holding cash¹⁹ which, by assumption, both parties agree to.

The seller would not accept that buying a truck reduces the present value of the business when what he sees is simply a useful change in the composition of the business's assets. Potential buyer and seller do not agree on present value. There is no classification of the truck purchase to this stage since there is not a mutual agreement on the content of the net rental stream.

There would be agreement on the net rental stream and so the present value if the buyer excluded the cost of the truck from the net rental. Since the truck is excluded from the agreed net rental its purchase is a capital account transaction.

This conclusion on the purchase of the truck is again compatible with the accounting approach, which also treats the event as one on capital account. When the accountant comes to record the transaction at the time that it takes place, no income is recognised in terms of the definitions of income and expenditure in the IASB Framework. There is simply the substitution of one asset (cash) for another asset (a truck) of equal value.²⁰

The rules and conventions of presentation of financial statements tell us that such a transaction is to be disclosed directly in the asset accounts in the balance sheet, rather than as gains and expenditure in the profit and loss account.²¹

¹⁹The argument is similar were the truck to be financed with debt. The seller of the business would argue that net worth is unaltered and the present value of the business is largely unaffected, except for the output effect of the truck, which both parties have agreed upon. The classification of interest on the debt is separate from the classification of the purchase of the truck so we may assume that both parties subtract the interest in the net rental calculation.

²⁰Strictly, application of the Framework's income definition treats the receipt of the truck as income in the form of a gain. The truck represents an increase in economic benefits in the form of an enhancement of assets, which, in terms of the accounting equation, results in an increase in equity. But the acquisition of the truck is only half of the transaction. It was acquired by parting with cash, and that outflow of cash is expenditure in terms of the Framework's definition of that term, *i.e.* the payment of cash reflects a decrease in economic benefits in the form of an outflow or depletion of assets, which, in itself, results in a decrease in equity. One cancels out the other so there is no profit, or **net** income, from the transaction.

²¹See, for example IASB (2003: §81), which specifies that, in this respect, the income statement need include only "the post-tax gain or loss recognised on the disposal of assets ...".

4.4 Revenue receipt

As our next example consider the classification of the sale of some item of inventory. Again invoke the potential sale of the business. Assume that the business has an agreement to sell currently held inventory immediately the buyer takes possession of the business. Cash balances or debtors will increase when the inventory is sold. That is to say a shift occurs in the composition of the firm's assets at the date of sale.

Suppose that the potential buyer omits the sale of that inventory from future sales proceeds. This depresses the buyer's net rentals and the present value of the business compared with including the inventory proceeds in the net rental stream. That receipt from sales increases cash or debtors by an amount equal to the sale. However, the buyer would not be paying for the increase in those assets because the equal amount of receipts from sales have been omitted from net rentals and from the present value calculation.

Were the potential seller of the business to acquiesce in the reduced sales figure a sum of cash or debtors would be received by the business that the buyer of it does not pay for. The potential seller would not give those assets away in this manner.

The seller would include the sale of the inventory in the net rental and would not agree with the buyer's present value. As yet there is no classification of the sale of inventory because the parties do not consent to an agreed net rental stream.

Were both parties to include the sale of inventory in their net rentals there would be agreement on the present value of the business. Since inventory sales are included in the agreed net rental they are classified as revenue transactions.

The accounting treatment will produce the same result when the time comes to record the sale of the inventory. Income in the form of revenue arises because the receipt of cash or acquisition of a debtor to the value of the sale price of the inventory represents an increase in economic benefits in the form of an inflow or enhancement of assets that results in an increase in equity (IASB (2001: §70(a))).²²

²² Of course, the departure of the inventory itself falls within the definition of expenditure (see footnote 13) but, assuming that the sale price of the inventory is higher than its cost price, and that the

4.5 Capital receipt

The next application of the market based method of classification separates the sale of a “long-term” asset from the foregoing sale of inventory. Imagine that a manufacturing concern sells of a piece of used equipment, say, a lathe. Again, we apply the criteria to a notional sale of the business. To fix ideas, we suppose that the proposed transfer of ownership is to be on one date and includes a prior agreement that whoever then owns the firm will sell the lathe say six months later. We wish to determine whether the lump sum from the sale of the lathe is to be a capital or a revenue transaction.

Holding wealth idle is sub-optimal so the lump sum from the sale of the lathe will be invested when it is received, let us say in a replacement lathe. Output from the existing lathe and its replacement contribute to the future net rental stream of the business.

Since our concern is just with the lump sum, we may assume that the potential buyer and seller of the business have agreed that the contributions to output from the lathe and its successor are to be parts of the future discounted net rental stream. They agree that the present value of the business is to include the contribution to net rentals of the lathe for the six months remaining and the output contributions of its succeeding asset.

To classify the proceeds of the sale of a second hand asset let us suppose that the potential seller of the business treats the lump sum (the lathe proceeds) as if it were a receipt from sale of output, thereby increasing the net rental stream. That is to say, not only has the seller included the output streams from both lathes but he incorporates the lump sum from the sale of the old lathe in the stream of proceeds from the sale of normal output. This would increase the seller’s estimate of present value compared with omitting the lump sum from the net rentals.

inventory was, since its purchase, recorded in the entity’s books at its cost price, the amount of the expenditure will be less than the amount of income, yielding a profit on the transaction. It is this profit that is the focus of the buyer’s and seller’s net present value calculations.

The potential buyer of the business would not accede to the seller's treatment of the lump sum. This is because the output contribution of the lathe and its succeeding asset is included in the future net rentals and so in the present value of the business. There are two parts to this contribution. The first is the six months' output contribution from the old lathe. The second part is the future output contribution of the replacement asset. This second part has a present value equal to the lump sum because the lump sum is the price of the replacement asset.

The potential buyer thus pays for the lump sum in the present value of the business because the discounted future output contribution, included in the agreed net rentals, of the succeeding asset is equal to the lump sum. Treating the lump sum as an ordinary sales receipt would thus be double counting the value of the lathe itself and the value of the replacement lathe. In other words, incorporating the lump sum into the agreed net rental calculations would be asking the potential buyer of the business to pay twice for the lump sum.

There is no agreement on the present value of the business if the seller includes the lump sum in the net rental calculation. The lump sum proceeds are not yet classified.

The alternative is for both parties to exclude the lump sum from the net rentals. They then arrive at a common present value for the business so there is price agreement. Exclusion means that the proceeds from the sale of a used asset are a capital transaction on the proposed market criteria. The standard accounting treatments of them are confirmed.

In terms of the IASB Framework, there is no income in this case because one asset (the old lathe) has simply been replaced by another asset – first cash, then (part of the cost price of) a new lathe.²³ Again, the rules and conventions of presentation of financial statements tell us that such a transaction is to be disclosed directly in the

²³ Following the same analysis as in section 4.3, upon the sale of the old lathe, application of the Framework's income definition treats the receipt of cash as income in the form of a gain. The cash represents an increase in economic benefits in the form of an enhancement of assets, which results in an increase in equity. However, the receipt of the cash required giving up the old lathe. The departure of that asset is expenditure in terms of the Framework's definition of that term, i.e. it represents a decrease in economic benefits in the form of an outflow or depletion of assets, which results in a decrease in equity. The receipt of cash is negated by the loss of the old lathe of equal value, so that there is no profit, or net income, from the transaction.

asset accounts in the balance sheet, rather than as gains and expenditure in the profit and loss account.

4.6 Lease inducement payment

Our last illustration applies the market based method to classify lease inducement payments. The difficulty with lease inducement payments is that in some sense or another it is undeniable that they are a partial offset to the amounts of the regular payments due under the lease by the tenant.

While application of the accounting conventions discussed in Section 3 would treat such gains as income derived from outside an entity's ordinary activities, the classification of lease inducement payments has differed between countries for income tax purposes. For example, New Zealand courts have found them to be non-taxable, capital amounts,²⁴ whereas Australian courts have viewed them as taxable, revenue items.²⁵

The firm is to make agreed regular lease payments. By doing so it acquires the right to receive a lease inducement payment. That is to say, regardless of who owns the business, the landlord will pay it a lump sum at a future date.

The problem is to decide on the accounting treatment of the lump sum. The market based procedure makes a determination by envisaging a hypothetical sale of a business.

When the lump sum is received it will be invested by the owner of the business because it is sub-optimal to do otherwise. The lump sum may be invested in a new asset within the business or outside it. Either way, the lump sum makes a contribution to the future net rental stream of the business. We are concerned just with the classification of the lump sum so we may assume that both parties agree on the contribution of the new asset to future net rentals.

²⁴ See, for example, *Wattie and Lawrence v. Commissioner of Inland Revenue* (1998) 19 NZTC 13,991 (PC).

²⁵ See, for example, *Federal Commissioner of Taxation v. Cooling* (1990) 21 ATR 13 and *Rotherwood v. Federal Commissioner of Taxation* (1996) 96 ATC 4,203.

Potential buyer and seller of the business realize that the extra output increases the present value of the business. The price of the new asset is equal to the present value of its future net contributions and the new asset's price equals the lump sum from the lease inducement. Thus the present value of the future output contributions from the new asset are equal to its price and in turn equal the lump sum of the lease inducement.

Now suppose, having agreed that the output contributions from the investment of the lump sum expand the net rental stream, one party decides further to include the lump sum itself as a receipt in the net rental stream. Inclusion of the lump sum in this second way would increase the net rental stream compared with exclusion. We have seen how the lump sum equals the present value of the output contributions from the new asset. Those output contributions are already in the net rentals, i.e. the value of the lump sum is there too. Including the lump sum again would thus be to include it a second time.

A buyer of the business would be paying twice for the lump sum were this treatment of the lease inducement to be accepted. So there would be no agreement on the present value of the business. That is to say a potential buyer would not agree to the inclusion of the lease inducement in the net rental stream. There is no classification of the lease inducement to this point.

Omitting the lease inducement from the net rentals would leave a mutually agreed net rental stream that includes the output contribution from the invested lump sum. Potential buyer and seller would then agree on the present value or price of the business. Since the lease inducement is omitted from the agreed net rental stream the inducement is a capital transaction under the market criteria²⁶.

The lump sum from the lease inducement is invested which provides a return. The economic effect is a reduction in the agreed regular lease payments once the time value of money is incorporated. The returns from the investment of the lump sum are

²⁶ A lease inducement payment could be made on the expiry of the lease. If the firm continues beyond that date the foregoing analysis applies as the lump sum will still be invested.

the same in present value terms as if there had been no lease inducement and an equivalent reduction in lease payments.

So how does accounting treat the receipt of a lease inducement payment? The receipt of the amount of the inducement payment itself is clearly a gain according to paragraphs 70(a) and 75 of the IASB Framework. Is there offsetting expenditure in terms of the definition of expenses in paragraph 70(b) of the Framework? Specifically, during the accounting period in which the lease inducement arrangement is entered into, has the entity incurred liabilities that result in decreases in equity? In principle, the answer is “yes” if, accompanying the “up-front” lease inducement payment, higher periodic lease payments are required to be made in the future. However, as we saw from the discussion of revenue expenditure in sections 3.2 and 4.2, the Framework’s underlying assumption of accrual accounting requires that periodic lease rental payments are recognised as expenses for accounting purposes on the basis of their “direct association” with the earning of income (IASB (2001: §95). In more conventional language, accounting requires the matching of an item expenditure with revenue. This means that, for accounting purposes, the increased periodic rental payments, which arise out of the lease inducement arrangement, are recognised as expenses over the lease term (in which revenue is produced). Consequently, accounting fails to offset the present value of the increase in future lease payments against the amount of the lease inducement payment received now or in the future.²⁷ This accounting treatment of incorporating all of the amount of the “up-front” lease inducement payment as income in the form of a gain – without the immediate offset of the present value of the incremental future lease payments – does not accord with the economic reality of the arrangement.²⁸

5 Formal Method of Classification

This section of the paper sets out the formal criteria for separating capital account transactions from revenue items using market arguments. The illustrative examples of the previous section tested for the inclusion of an item in, or its exclusion from, the agreed net rental stream. This test is sufficient to classify all items except capital

²⁷ *Ceteris paribus*, the lessor would require the two values to be equal.

²⁸ See also Holmes (2001, 303-308) for a further discussion of why such inducement payments are not economic income upon their receipt.

gains. To classify capital gains we will have to go beyond the agreed net rental stream to SHS income. The classification of capital gains and all other items that is to be demonstrated in this section will rest upon the essential equivalence of the present value formula and SHS income.

This section develops, in addition, the concept of income that applies in the market place. Perhaps surprisingly, this development will show that the SHS notion emerges from the pricing of assets in the market place. The SHS definition will thereby be shown to be unnecessary as a stand alone concept. The preparation of profit and loss statements and balance sheets will be shown not to require the application of the SHS definition, as the concept is embedded naturally in asset prices prior to the assembly of those data.

5.1 SHS income and present value

The accounting notions of income and expenditure, which are applied to arrive at profit, as prescribed by the IASB, are consistent with the SHS notion of income, which, it will be recalled from Section 2.1, is, to use Simons's (1938:50) description:

the algebraic sum of (1) the market value of rights exercised in consumption and (2) the change in the value of the store of property rights between the beginning and end of the period in question.

Notice here, for discussion in Section 6.1, that Simons's definition encompasses consumption, an item that is not recorded in the books of account. His definition is a rule. It explicates how to obtain SHS income: simply add the items (1) and (2). For example, suppose that other assets and liabilities stayed constant over a period while the bank balance of a business expanded, notwithstanding the effects of the proprietors in drawing it down to fund their personal consumption. The business's SHS income is the sum of the two items: this consumption plus the (signed) change in the bank balance.

The next several paragraphs are a necessary detour to show that SHS income and Hicksian income are equal.

Let the yet to be determined price of an asset be V_t and the net rentals from it be N_t . Suppose that a business acquires a quantity of extra resources by trading in period t . Then the accretion to resources is the net rental plus the capital gain, *viz.*,

$$N_t + \Delta V_t$$

Now recall from Simons's definition that income is consumption funded from the business plus the change in business wealth. The firm's wealth, W_t , is affected by market conditions and trade, changing by ΔW_t in period t .

Were owners to make withdrawals for consumption, C_t , these withdrawals would alter the wealth of the firm. An increase in C_t would reduce W_t by an equal amount, for \$10 of extra owners' consumption would result in a \$10 lesser bank balance for the firm.

The accretion in the firm's resources therefore goes either into C_t or into ΔW_t . That accretion was shown above to be $N_t + \Delta V_t$. Thus,

$$C_t + \Delta W_t = N_t + \Delta V_t$$

the left side of which is SHS income. So

$$C_t + \Delta W_t = \text{SHS income} = N_t + \Delta V_t$$

Set $\Delta W_t = 0$, so that wealth is constant, and assume that $N_t + \Delta V_t > 0$ in this equation²⁹.

The resulting value of $C_t = C_t^* = \text{SHS income}$ when wealth is constant. That consumption then absorbs the entire SHS income. C_t^* is therefore maximum value that consumption can take while business wealth is held constant. This shows that SHS income is also the *maximum* value of owners' consumption that the business *could* fund while keeping business wealth unchanged.

²⁹ Negative values of $N_t + \Delta V_t$, *i.e.* losses, indicate the minimum amount that owners must inject to preserve business wealth.

Maximal consumption funded from the business at constant wealth is Hicksian income (see Section 2.2). Thus, it has been demonstrated that SHS income and Hicksian income are numerically equal and equal to net rentals plus capital gains.

The paper now examines the relation between SHS income and the present value formula.

The as yet to be determined price of an asset at date t has been defined to be V_t . There are two parts to the market return on an asset in a period t+1, its capital gain, ΔV_{t+1} , and its net rental, N_{t+1} . The SHS income from the asset in period t+1 was just shown to be,

$$N_{t+1} + \Delta V_{t+1} \quad (1)$$

An asset held by an optimising firm earns the opportunity cost of the capital invested in that asset. This opportunity cost is the greatest amount that could be earned were the capital invested elsewhere. Assuming that interest is paid in arrears, such an asset would yield in period t+1 the amount $r_t V_t$ were it invested on the open market at the variable interest rate r_t for period t.

$r_t V_t$ is the opportunity cost of the capital invested in our asset. This potential reward could fall short of the SHS income, expression (1), from the asset. Were that the case, the asset is particularly lucrative compared with the alternative so buyers would be eager for it. Its price, V_{t+1} , would rise until the opportunity cost matched the SHS income from the asset. The matching occurs in the next period because of the lagged interest payments. Conversely, were the opportunity cost to exceed the SHS income in expression (1) from the asset there would be a sell off and V_{t+1} would fall bringing about equality in the following period. Market forces thus bring SHS income into equality with the opportunity cost of capital. This equality is a requirement of asset market equilibrium.

Equating the SHS income of expression (1) with this opportunity cost of capital yields the asset market equilibrium equation,

$$N_{t+1} + \Delta V_{t+1} = r_t V_t \quad (2)$$

Now,

$$\Delta V_{t+1} = V_{t+1} - V_t \quad (3)$$

So that, by putting (3) into (2),

$$N_{t+1} + V_{t+1} - V_t = r_t V_t \quad (4)$$

Equation (4) is a recurrence equation, sometimes called a difference equation. It is solved in the Appendix³⁰ for V_t , the asset price at time t, *i.e.*

$$V_t = \sum_{i=t}^{T-1} \frac{N_{i+1}}{\prod_{j=t}^i (1 + r_j)} \quad (5)$$

Expression (5) is the present value of the asset³¹. Some points to notice about formula (5) are: (a) it is the net rentals, so important in the classification problems of the previous section, that are discounted; (b) the quantity V_t , the present value, is the price that equilibrated the returns from the asset with its opportunity cost in the haggling process summarised in equation (2). Thus the price of the asset is its present value; (c) capital gains are not discounted.

5.2 Income in the market-place

³⁰ The Appendix takes account of “income” taxation, accrued capital gains taxes and scrap value, none of which modify our arguments or conclusions which is why they are omitted here. For the taxation of realized capital gains, by a method that avoids lock-in and intertemporal tax arbitrage, see Auerbach (1981). It might be cautioned here that the agreed asset price, V_t , in formula (5) would of course be different in the absence of taxes than it would be in their presence, as a comparison between equation (5) of the text and Appendix equation (A4) indicates. Since both parties would agree on the tax affected price, the method still applies.

³¹ The range of subscripts on the summation symbol and on N are such that the net rental in the final period T is included in the discounting process. The T-1 superscript and the i+1 subscript in equation (5) arise because interest is paid in arrears.

Since the present value formula (5) is the price of the asset, by working backwards we see that V_t is the sum of money that purchases the current and future income stream given by the left hand side of equation (2). Being expression (1), the left side of equation (2) is SHS income. That is to say the purchase of the asset confers the right to its SHS income upon the owner.

We have seen in Section 4 how, through the interaction between buyers and sellers, the market settles on the positive and negative terms within the net rental component of SHS income. Market forces settle the other component, the capital gain ΔV_t , though more by general conditions and changes in interest rates (which we have allowed to vary) than by direct haggling. The market thus fixes both components of SHS income.

The upshot is that buyer and seller in agreeing on asset price also agree on the SHS notion of income. This shows that the SHS income concept is the market's definition of income.

Justifying accounting conventions that define income differently from SHS income becomes difficult since they diverge from the practice of the market. Alternative definitions of income are beyond the reality of the market-place.³²

5.3 The market's capital-revenue boundary

In Section 4 the classification criteria focussed on the composition of the net rental stream. The definition of SHS income, expression (1), contains the net rental stream. So the classification criteria that were phrased in terms of net rentals also imply an item's inclusion in, or exclusion from, SHS income.

However, capital gains are not a part of the net rental stream, N_t , that is discounted in present value formula (5). Since they are excluded from the net rental stream our methodology in Section 4 would classify them as capital account items. We go on to

³² Depreciation charges are a case in point. See McCann and Butcher (2008).

explain why this classification is incorrect. It is also the reason why we must extend the classification criteria beyond the agreed net rental stream to SHS income.

We have seen how the present value formula and the asset market equilibrium condition are formally equivalent expressions. The left member of the asset market equilibrium condition (2) is SHS income containing N_{t+1} , the net rental, and ΔV_{t+1} , the capital gain. We have also seen how SHS income is the income concept that emerges in the market from the haggling process.

We may therefore express the classification criteria in terms of the inclusion in, or the exclusion of an item from, the SHS income. Items other than capital gains that are included or excluded from the agreed net rentals will be similarly included in, or excluded from, SHS income. In addition, capital gains are included in the SHS income that is implied by the present value formula. This agreed SHS income provides price agreement through the present value formula (5) which does not discount capital gains.

The equivalence of equations (2) and (5) can now be used to properly classify items. Therefore the classification criteria can be expressed in terms of equation (2). *viz*,

To separate transactions into their capital and revenue account groupings, apply the following algorithm:

- (1) Test whether or not potential buyers and potential sellers of a business agree on the present value of the business. If there is no such agreement there is no classification.*
- (2) If an item is included in the agreed SHS income stream to the left of equation (2), classify it as being on revenue account.*
- (3) If an item is omitted from the agreed SHS income stream, classify it as a capital account transaction.*

Capital gains are explicitly revenue items by criterion (2). All other transactions are tested against the agreed discounted net revenue stream, N_t , that is within SHS income. Our five examples in Section 4 apply to the revised criteria in exactly the same way as before.

Observe that the categorization of all possible transactions is complete with respect to SHS income. A transaction is either included in it or it is excluded. Every financial item is either one or the other; not both and not neither. Thus the market method unambiguously categorizes all transactions. The ambiguities in this area of the law broadly, of accounting conventions and of administrative tax law are now resolved.

6. Accounting Foundations

6.1 Financial Statements

SHS income is $\Delta V_t + N_t$, and we have seen how the haggling in the market place results in buyers and sellers competing for that stream of net receipts and capital gains. From that competitive process there emerges the components of the future stream that the parties bargain for. Section 4 contains several examples of the manner in which the content of the net rental part of the stream is determined by market forces. Parties haggle over the items that compose the total stream each period $\Delta V_t + N_t$, which is not a definition – the total stream is a part of the asset market equilibrium condition; equation (2). This demonstrates that SHS income is not a definition that is to be imposed *a priori* on the system; it is something that is inherent in market interactions.

It therefore follows that the addition of a definition of SHS income to the accounting system is not required when preparing profit and loss statements and balance sheets on a current price basis. The examples of Section 4 illustrate this conclusion. No definition of income, *qua* income, was applied in them.

The current price (*i.e.* present value) method of accounting leads naturally to profit statements that contain exactly the components within the terms making up $\Delta V_t + N_t$, nothing more and nothing less. Remaining items comprise the balance sheet. This

delineation is what the market determined capital-revenue boundary imposes without the detour through the SHS definition of income. It is unnecessary and redundant to impose the SHS definition of income upon the current price accounting system.

Following the definition of SHS income in Section 5 we noted that Simons' definition of it introduces a dollar amount, consumption, that is not included in the accounts of a business. The reason for the exclusion is that consumption is not a business activity. This raises the question of how in a formal sense SHS income is to be brought into the accounts.

One could possibly use distributions, X_t , to owners in place of consumption in the SHS definition, as discussed in Section 2.3. These distributions appear in the books of account. On this basis, one could perhaps define the income, Y_t , of the business as,

$$Y_t = X_t + \Delta V_t \quad (6)$$

However, distributions often depend on income in extremely complicated ways and often involve other considerations such as cash flow. Distributions and income may indeed be related with their relation expressible as $f(X_t, Y_t) = 0$. This relation may be solvable in principle for X_t in terms of Y_t but we may not know that actual solution. In those cases, while equation (6) is valid, it does not allow us to compute its left hand side because X_t and Y_t , cannot be untangled.³³

That is to say that, using distributions to proprietors instead of their consumption does not unequivocally allow one to find business income. Taking distributions to owners, which appear in the accounts, in place of consumption, which does not, fails to provide a workable definition of business income.

This forces one back to Simons' own definition with its introduction of an item, consumption, that does not appear in the accounts. The definition carries the difficulty that the application the SHS concept appears to require the introduction of

³³ There are issues involving the implicit function theorem here. Accounts require global solutions that are explicit. The accounting profession, tax authorities and the law are not yet ready for multiple solution values for the income variable.

the dollar value of consumption to the accounting system, the record of which is to be kept outside that system.

We resolved this problem by showing in Section 5.1 that SHS income is in fact identical to

$$\Delta V_{t+1} + N_{t+1}$$

both terms of which appear in the books of account when they are kept at current prices. Our method does not require memorandum accounts to track consumption and does not require the assumption that consumption outlays are known.

The outcome of this finding is to strengthen the foundations of current price accounting. This is because when a logical system is shown to require fewer assumptions than was previously thought the system immediately gains wider applicability.

6.2 Accrued Expenditure

The accounting notion of unexpired expenditure was discussed in Section 3. Here we examine how the market method of classification bears on this accounting convention.

Suppose that at the beginning of a financial period a business leases some equipment for its own use for one year, with lease payments made annually in advance. The business prepares quarterly and annual accounts.

The benefits from the equipment run each quarter through the year. Applying the unexpired expenditure convention would result, say, in $\frac{1}{4}$ of the amount of the lease being expensed in each quarter and $\frac{3}{4}$, $\frac{1}{2}$, $\frac{1}{4}$ and 0 of it being shown as a balance sheet asset "unexpired lease" in the respective quarters 1, 2, 3 and 4. Our fractions assume that straight-line calculations are used but diminishing value or some other arithmetic could have been applied. This fact indicates the arbitrary nature of these solutions.

In the *annual* accounts the benefits of the equipment would show in the sales of output and the entire amount of the lease would be expensed. It would not appear in the balance sheet at all. This is because there is no unexpired expenditure at the end of the period of the annual accounts.

From the layperson's perspective, the unusual aspect of the five sets of accounts is that the treatment of the lease depends on the length selected for the unit time period. The unexpired lease is an asset in three sets of quarterly accounts, for nine months, but it is not so in the fourth quarter and annual sets.

In science generally, a concept that changes with the definition of the units of measurement is not acceptable because it means that answers using them are to that extent arbitrary: choose the unit of time to get the answer that you want. Notwithstanding this position, the educated layperson would probably understand the reasoning behind the principle of unexpired expenditure and so would be left perplexed, wanting to know what is uniform in the five sets of accounts.

The market method of classifying transactions resolves this conundrum. We will show that the market expenses a part of the lease each quarter and shows the remainder of it to be a capital item. In the annual accounts there would be no asset shown as an unexpired lease in the balance sheet by the market method and the full lease would be on revenue account.

In short, the market method of classification will be shown to confirm existing accounting practice but the principle of unexpired expenditure will not be applied, showing it to be an unnecessary construct. This will also resolve the apparent sensitivity of the financial accounts to the length chosen for the unit of time.

Firstly we observe that equations (2) and (5), the asset market equilibrium and the present value formula, hold regardless of whether time is measured in quarters, calendar years or in sidereal or lunar years or in any other way. This will be the basis of our response to the layperson's issues. The important thing is that exactly the

same equations will be used whatever unit of time is chosen for the application of the market method of classifying the lease.

Suppose, to simplify, that the business is static, always replicating its results. Then we may treat equation (2) as relating just to the leased equipment. There will be a “capital loss” on the lease each period (regardless of the definition of the unit of time) because the contribution of the leased equipment to future net rentals is reduced as the lease ages. ΔV_t therefore contributes negatively to SHS income on the left of equation (2) when the unit time period is the quarter.

By Criterion (2) in the box in Section 5 this “capital loss” is on revenue account. It is through this loss that the used part of the lease is charged against profits. Arithmetically, the loss each period is calculated as the change in present value as a result of one period passing, of whatever initially chosen length.

The benefits from the leased plant show in the net rentals N_t , a revenue item.

At any date t we wish to calculate the value of the asset to appear in the balance sheet. We use the asset market equilibrium process, and the present value expression (5) to do so. The value of the unexpired portion of the leased equipment depends on the future net rentals over the remainder of the life of the lease, its present value is V_t , from equation (5). Notice that V_t is not a part of SHS income to the left of equation (2) so by Criterion (3) V_t is a capital or balance sheet item.

Returning to our example of quarterly and annual accounts, we see that in the case of the annual accounts the lease has time to run of zero and future net rentals of zero so its capital or balance sheet value is zero. Buyer and seller on opening date would agree that in the annual accounts the amount paid on opening date for the lease and the proceeds of the sales of the output from the equipment would both be included in the net rentals from the business as a whole. In the annual accounts they are both revenue items, by Criterion 2.

The doctrine of unexpired expenditure has not been applied in the forgoing method of expensing the lease. What has been shown here is that the doctrine of unexpired expenditure is otiose, it is an unnecessary construct. The market method of classification resolves the problems of unexpired expenditure without recourse to that convention. The problem of the classification of a transaction depending on the definition of the length of the unit of time has also been resolved. We use equations (2) and (5) for all definitions of the unit time period. This dissolves the lay person's conundrum. The parts of the problem that are uniform for all definitions of the unit time period are the asset market equilibrium condition and the present value formula. They have the same form for every definition of the unit time period.

7 Conclusion

This paper has demonstrated that the market allocates every transaction to one or the other of two categories. One group of transactions is defined as revenue items and the other is defined as transactions on capital account. This market based classification is consistent in the majority of cases with the classification of transactions recommended by professional accountancy bodies.

It is in the more esoteric transactions that the market classification and the traditional accounting classification differ. In those cases, the accounting approach needs to be reviewed to align it with the market classification. Market methodology for capital and revenue income and expenditure classification is fundamentally different in nature from the accounting principles approach to the problem. The market classification is founded upon a more theoretically robust and rational premise than that adopted in the IASB Framework. Therefore, the IASB and national accountancy bodies should embrace the market based approach in making their determinations on the capital or revenue character of financial items.

The market based method of determination has a broad-brush explanation. Under ideal circumstances the paper has shown that the market price of a business is equal to the present value of the discounted net rental stream from it. In haggling over its price, buyers and sellers of an asset have been shown to necessarily agree on the content of the future net rental stream plus the capital gains from it that the buyer acquires and the seller relinquishes. Items are either in or out of that agreed stream.

Items that form the acquired (relinquished) stream are to be classified by the market as revenue transactions. Items excluded from the stream are classified as on capital account. Examples have been provided of the location of the capital-revenue boundary by market forces.

It has been further shown that the two parts (net rental and capital gain) to the stream sum to the SHS income from the asset. Thus, the paper has also shown that the market defines income according to the SHS concept of income and that the SHS concept and the present value formula are essentially equivalent.

This equivalence has been shown to imply that SHS income is subsumed in the price (*i.e.* present value) of an asset. Accounting therefore does not require the SHS notion of income as a separate definition to be imposed on the profit and loss statement.

The compound noun “SHS income” is useful shorthand for a well defined stream of net receipts plus capital gain that are the sole content of the profit and loss account. What should be remembered when using this noun is that it is no longer a definition that involves consumption. The term also means the future stream of net receipts and capital gains over a period that the owners of an asset buy at purchase date. Defining it, as Simons did, as consumption rights plus the change in property rights is complex and redundant.

A practical difficulty in accounting by SHS precepts is that it requires knowledge of owners’ consumption which is unknown for (especially widely-held) corporations. The paper circumvents this difficulty by showing that SHS income is equal to net rentals plus capital gains, both of which are internal to current price accounts so that profit statements can be prepared without the assumption about consumption.

The market place selects the content of the profit and loss account and the balance sheet that are relevant to it, according to the processes that we have outlined. Through the effects of accounting conventions, these are not the statements owners receive. In itself this is a puzzle. As with SHS income, the doctrine of unexpired expenditure is likewise unnecessary, and in fact arbitrary and misleading.

Two ideas at the heart of accounting have been shown to be redundant. These demonstrations strengthen the foundations of an accounting system. This is because, when a logical system is shown to rest on fewer assumptions, its results become more general.

Appendix

The asset market equilibrium condition and the present value formula

When the market equilibrium condition, equation (2) of the text, is augmented by “income” tax at rate τ_t , and an accrued capital gains tax at rate τ'_t , and interest is paid in arrears, the asset market equilibrium condition for time $t+1$, is:

$$(1 - \tau_t)r_t V_t = (1 - \tau_{t+1})N_{t+1} + (1 - \tau'_{t+1})[V_{t+1} - V_t] \text{-----} (A1)$$

so

$$[(1 - \tau'_{t+1}) + (1 - \tau_t)r_t]V_t = (1 - \tau_{t+1})N_{t+1} + (1 - \tau'_{t+1})V_{t+1}$$

Let

$$a_t = \frac{[(1 - \tau'_{t+1}) + (1 - \tau_t)r_t]}{(1 - \tau'_{t+1})} \text{...and...} b_{t+1} = \frac{(1 - \tau_{t+1})}{(1 - \tau'_{t+1})} \text{----} (A2)$$

then

$$a_t V_t = b_{t+1} N_{t+1} + V_{t+1}$$

and

$$V_t = a_t^{-1} [b_{t+1} N_{t+1} + V_{t+1}] \text{-----} (A3)$$

Equation (A3) is the fundamental recursive equation. It will emerge that a_t is the discount factor in the present value expression.

We consider an asset whose final productive period is time T . The asset is sold in period $T+1$ for its scrap value, S_{T+1} . Notice that $N_{T+1}=0$ and $V_{T+1}=S_{T+1}$. Using those values the asset market equilibrium condition for period $T+1$ is therefore,

$$(1 - \tau_T)r_T V_T = (1 - \tau_{T+1})N_{T+1} + (1 - \tau'_{T+1})[V_{T+1} - V_T] \text{-----} (A4)$$

or

$$a_T V_T = S_{T+1}$$

so

$$V_T = \frac{S_{T+1}}{a_T} \text{-----} (A5)$$

Observe from equation (A4) that the scrap value is a part of the calculation of the capital loss in the final portion of SHS income from the asset in period T+1. This is because $V_{T+1}=S_{T+1}$. Capital gains and losses are on revenue account by criterion (2) of the Section 4. Scrap value is a part of the final capital gain/loss term for T+1.

We wish to solve the asset market equilibrium condition, equation (2) of the text or equation (A1) of the Appendix, for V_t . That is to say we need to solve the fundamental recursive equation (A3) for V_t .

Theorem:

The solution to the fundamental recursive equation (A3) is the present value expression,

$$V_t = \sum_{i=t}^{T-1} \frac{b_{i+1}N_{i+1}}{\prod_{j=t}^i a_j} + \frac{S_{T+1}}{\prod_{j=t}^T a_j} \text{-----(A6)}$$

Proof

By induction, working from the terminal date T to the earlier valuation date t. For t=T-1 equation (A6) gives,

$$\begin{aligned} V_{T-1} &= \sum_{i=T-1}^{T-1} \frac{b_{i+1}N_{i+1}}{\prod_{j=T-1}^i a_j} + \frac{S_{T+1}}{\prod_{j=T-1}^T a_j} \\ &= \frac{b_T N_T}{a_{T-1}} + \frac{S_{T+1}}{a_{T-1} a_T} \\ &= a_{T-1}^{-1} [b_T N_T + \frac{S_{T+1}}{a_T}] \\ &= a_{T-1}^{-1} [b_T N_T + V_T] \text{-----(A7)} \end{aligned}$$

after using equation (A5). Expression (A7) is true, from the fundamental recursive equation (A3). This completes the first part of the inductive proof.

The second part of the backward looking inductive proof requires a demonstration that if (A6) is true for an arbitrary t=k+1 then it is true for t=k.

Accordingly, assume that,

$$V_{k+1} = \sum_{i=k+1}^{T-1} \frac{b_{i+1} N_{i+1}}{\prod_{j=k+1}^i a_j} + \frac{S_{T+1}}{\prod_{j=k+1}^T a_j} \text{-----(A8)}$$

From the fundamental recursive equation (A3),

$$V_k = a_k^{-1} [b_{k+1} N_{k+1} + V_{k+1}] \text{-----(A9)}$$

Use (A8) in (A9),

$$\begin{aligned} V_k &= a_k^{-1} [b_{k+1} N_{k+1} + \sum_{i=k+1}^{T-1} \frac{b_{i+1} N_{i+1}}{\prod_{j=k+1}^i a_j} + \frac{S_{T+1}}{\prod_{j=k+1}^T a_j}] \\ &= \sum_{i=k}^{T-1} \frac{b_{i+1} N_{i+1}}{\prod_{j=k}^i a_j} + \frac{S_{T+1}}{\prod_{j=k}^T a_j} \end{aligned}$$

which is expression (A6), completing the proof.

Notice (1) from the subscripts and superscripts on N and on the summation sign that N_T is included in the present value expression; (2) the discount factor a_j , defined at (A2) for time $j=t$, is not the after tax interest rate; (3) the market interest rate r_t is expressly allowed to vary over time though it need not. If it is constant over time then the familiar power terms are obtained in the denominators; (4) if tax losses are carried forward the parties still agree on the valuation of the business when the losses are transferable between owners. If they are not transferable the parties agree on a price difference equal to the present value of the non transferable tax benefits and the method applies to the remaining items even though ownership would not change.

Equation (5) of the text assumes that all tax rates and also the scrap value are zero.

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