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Some Algebra of Fiscal Transparency: How"Accounting Devices Work and How to Reveal Them

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Some Algebra of Fiscal Transparency: How Accounting Devices Work and How to Reveal Them

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Abstract

Accounting devices that artificially reduce the measured fiscal deficit can be analyzed as transactions involving unrecognized assets and liabilities. Different accounting systems recognize different sets of assets and liabilities and are thus vulnerable to different sets of devices. Some devices can be revealed by moving progressively from cash accounting to modified accrual accounting to full accrual accounting. Revealing all would require the publication of extended fiscal accounts in which all future cash flows give rise to assets or liabilities.

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I. INTRODUCTION

Government accounts typically do not reveal the full fiscal effects of policy decisions in the year in which the decisions are made. This makes them vulnerable to deficit devices, or transactions that reduce the deficit in the short term, only to increase it later (Easterly, 1999; Koen and van den Noord, 2005; Irwin, 2012). For example, governments can sometimes cut the deficit by taking over a private pension scheme; the takeover may not improve public finances, but if the obligation to pay pensions does not count as a liability, the receipt of the pension scheme's assets can be treated as revenue that reduces the deficit.

This paper presents an analysis of accounting devices that aims to clarify their relationship to accounting rules. It offers a few examples of devices not mentioned in the above papers, but its main aim is to analyze the problem, not to describe its manifestations. Although it does not propose any specific changes in accounting or statistical standards, it aims to clarify the nature of the changes that would limit or reveal the use of accounting devices.

It begins by considering a world in which it is clear what constitutes an asset or liability. In such a world, deficit devices can be analyzed as transactions involving assets or liabilities that because of flaws in the accounting are not recognized on the government's balance sheet. The existence of such assets and liabilities means that a government's reported net worth may differ from its true net worth, and its reported deficit may differ from its true deficit (where the true deficit is defined, following the "clean-surplus" assumption, as the change in the government's net worth). The pension-scheme takeover mentioned above is a transaction in which an unrecognized liability is assumed in return for recognized assets.

The paper then considers a more complex world, in which assets and liabilities come in different kinds. In this world, there are many different accounting systems—such as cash accounting, modified accrual accounting, and full accrual accounting—each of them recognizing a different set of assets and liabilities and generating a different measure of the deficit. From the vantage point of full accrual accounting, each accounting system based on a narrower set of assets and liabilities can be seen to be vulnerable to its own set of accounting devices; thus, the scope for accounting devices can be progressively reduced by moving from cash accounting to modified accrual accounting to full accrual accounting. Yet even full accrual accounting is vulnerable to some devices that reduce the deficit in the short term, only to increase it later. And, as modern standards for accrual accounting recognize— narrower measures of the deficit can be informative even though they are vulnerable to devices. The paper therefore suggests the presentation of a set of integrated fiscal accounts that include several measures of the deficit, including one that equals the decline in the net present value of all projected cash flows under current policies.

The paper ends by noting the value of certain decompositions of clean surpluses into component parts and by considering the devices to which some nonclean surpluses are vulnerable.

II. ONE TRUE DEFICIT

We consider a budgetary world in which there are only two periods, the interest rate is zero, and—in this section—no doubt about what is an asset or liability.

The government can run a deficit, but it faces an intertemporal budget constraint that requires it to end the second period with net worth equal to its net worth at the beginning of the first period (that is, at the end of period zero). Letting w denote the government's net worth and letting subscripts on balance-sheet items refer to the end of a period, we thus have

$$w_0 = w_2. \tag{1}$$

The government's *clean surplus*, s, is the increase in its net worth.[2]

$$s_t = w_t - w_{t-1}. \tag{2}$$

Letting $\Delta \cdot_t$ denote the change in a variable from time $t - 1$ to time t, we can also write the surplus as $s_t = \Delta w_t$.

If the government runs a deficit in the first period, it must run a surplus of equal size in the second. In symbols, repeated application of equation (2) implies that $w_2 = w_1 + s_2 = w_0 + s_1 + s_2$, which, by equation (1), implies that $s_1 = -s_2$.

Notice, from equation (2), that the surplus is not affected by transactions in assets and liabilities that leave net worth unchanged, such as the purchase of an asset financed by debt.

Measuring the surplus as the increase in net worth is natural and simple. In accounting terms, such a surplus is called *clean* (or *comprehensive*).[3] There are other useful surpluses as well, including those derived from decomposition of the clean surplus into parts. Some are considered later. Surpluses can also be expressed as revenues less spending, allowing the fourfold classification of accounting devices used in Irwin (2012).

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[2]The term *surplus* is used here to refer the change in net worth, whether positive or negative. A deficit is thus a negative surplus.

[3]See, for example, Nobes (2006, pp. 66, 111). When several different sets of assets and liabilities and associated measures of net worth are considered, a surplus can be said to be clean or comprehensive *with respect to* a measure of net worth.

A. Deficit Devices

Before considering how deficit devices can arise in this simple world, it is worth considering *why* they might arise. One possibility is that the government faces a binding fiscal rule and wants to run a larger deficit in the first period than is allowed by the rule. Given the choice, it therefore prefers to employ a deficit device in the first period than to cut spending or raise taxes. Another possibility is that the government faces an election at the end of the first period and wants to attract voters by spending more in the first period than it collects in taxes, while simultaneously persuading them that these levels of spending and taxation can be sustained in the second period. More specifically, we might suppose that voters understand the intertemporal budget constraint, and therefore recognize that spending in excess of tax revenue is unsustainable, but that they judge the sustainability of spending only by looking at the reported deficit.

In any case, deficit devices are feasible in this world because only some of the government's assets and liabilities are recognized in its accounting. Others are *unrecognized* or, equivalently, *off balance sheet*.[4]

Using superscript "on" and "off" to distinguish between recognized and unrecognized assets and liabilities, and interpreting variables without superscripts, including those above, as totals, we can write the government's true net worth as the sum of its recognized and unrecognized net worth:

$$w_t = w_t^{\text{on}} + w_t^{\text{off}}. \tag{3}$$

In the presence of unrecognized net worth, the true surplus can differ from the reported surplus, s'. But we assume that the reported surplus is also clean:

$$s_t' = w_t^{\text{on}} - w_{t-1}^{\text{on}}. \tag{4}$$

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[4]Expressions such as *unrecognized asset* and *off-balance-sheet liability* are troublesome in the language of any particular accounting system, because anything that is an asset or liability in that system cannot legitimately be kept off the balance sheet. See, for example, the discussion of *contingent liability* in Stickney and others (2010, p. 852). In each system, that is, if a given set of property rights constitutes an asset or liability, it must be recognized. In the language of the system, therefore, expressions such as *unrecognized asset* and *off-balance-sheet liability* are either contradictions in terms or refer to mistakes in the application of the accounting. To avoid this problem, this paper uses the terms *assets* and *liabilities* as they would be defined in the most comprehensive accounting system under consideration; in any other system, these assets and liabilities may or may not be recognized.

Equation (4) implies that the reported surplus is unaffected by offsetting transactions in recognized assets and liabilities, such as the purchase of a recognized asset financed by the issuance of a recognized liability of equal value. But in general the reported surplus *is* affected by offsetting transactions involving a mix of recognized and unrecognized assets or liabilities. In particular, it can be increased by selling an unrecognized asset or issuing an unrecognized liability, in return for the receipt of a recognized asset or the cancellation of a recognized liability.

Equations (3) and (4) imply that the reported surplus can be expressed as

$$s'_t = (w_t - w_t^{\text{off}}) - (w_{t-1} - w_{t-1}^{\text{off}}).$$

Rearranging this, we get

$$s'_t = (w_t - w_{t-1}) - (w_t^{\text{off}} - w_{t-1}^{\text{off}}),$$

or, using equation (2),

$$s'_t - s_t = -\Delta w_t^{\text{off}}. \tag{5}$$

That is, the difference between the reported and the true surplus is the decline in unrecognized net worth.[5]

B. Debt

Devices that reduce the reported deficit typically reduce reported debt as well. To see the relationship, let us assume that all the government's debt, b, is recognized, but that its assets, a, and nondebt liabilities, l, need not be. Then reported net worth is given by

$$w_t^{\text{on}} = a_t^{\text{on}} - b_t - l_t^{\text{on}}. \tag{6}$$

It follows from equations (4) and (6) that

$$\Delta b = -s'_t + \Delta a_t^{\text{on}} - \Delta l_t^{\text{on}}.$$

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[5]Accounting devices are also possible when assets and liabilities are valued at other than market value. For example, a government can increase its surplus by selling assets whose book values are less than their market values. In such cases, the difference between book and market value can be analyzed as an unrecognized asset or liability.

That is, the increase in debt equals the reported deficit plus two terms that are the stock-flow adjustment in this set-up: the increase in recognized assets less the increase in recognized nondebt liabilities. If the reported surplus is higher than the true surplus because of a deficit device, debt will fall unless the transaction also involves a change in the terms of the stock-flow adjustment that more than offsets the increase in the reported surplus.

When a fiscal rule limits the government's permitted debt, the government may be tempted to reduce debt without increasing its net worth. It can do so by using a deficit device or simply by rearranging its reported balance sheet: it can reduce debt by selling recognized assets or incurring recognized nondebt liabilities. If accounts payable are recognized as liabilities but not counted as debt, for example, the government can build up arrears to employees and suppliers. Another apparent example is the issuance of off-market swaps by various European governments in the 2000s (see Irwin, 2012, and references therein). Entering into the swaps, the governments incurred liabilities that had to be recognized and thus counted in calculating the deficit, but derivatives in loss did not count as debt so the issuance allowed them to borrow without reporting new debt.

III. MULTIPLE DEFICITS

So far we have assumed that rights to receive future benefits either constitute an asset or not, and likewise that obligations to provide future benefits either constitute a liability or not. But rights and obligations come in varying kinds. Some rights and obligations involve iron-clad commitments to make payments come hell or high water. Others depend on custom and the expectations that custom creates. And those expectations and customs can themselves be more or less firmly entrenched. Finally, the less clear-cut rights and obligations can seldom be valued with precision, which creates a new opportunity for accounting devices.[6] This creates doubts about whether some rights and obligations should be considered as assets and liabilities and a reason for adopting an approach that distinguishes different kinds of assets and liabilities. In this section, we allow for a variety of assets and liabilities and a variety of accounting systems.

In symbols, let J denote the accounting system that arises from the recognition of the assets and liabilities in set J. Net worth in accounting system J, w^J, is the sum of the values of all the assets in J, less the sum of the values of all the liabilities in J. The clean surplus of J is given by

$$s_t^J = w_t^J - w_{t-1}^J.$$

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[6]When assets and liabilities are difficult to value, book values can easily diverge from market values. This allows for the kind of devices discussed in footnote 5.

There are very many possible accounting systems. With *m* kinds of assets and *n* kinds of liabilities, there are 2^{m+n}, so with, say, five of each there are more than a thousand systems, each with its own clean surplus.

Only a few accounting systems are interesting. Many of those systems form a nested sequence, being based on nested sets of assets and liabilities. Figure 1 shows three sets of assets and liabilities that are important in the *Government Finance Statistics Manual* (IMF, 2001). The smallest set, *C*, which contains cash but nothing else, is associated with cash accounting. A larger set, *F*, which also includes cash but in addition contains other financial assets and liabilities, is associated with modified accrual accounting. The set *R* is larger still. It contains all the assets and liabilities in *F* and nonfinancial assets as well. It is associated with full accrual accounting.

**Figure 1. Sets of Assets and Liabilities Recognized in
Different Accounting Systems**

Rights and obligations associated with
all future cash flows (*E*)

All currently recognized
assets and liabilities (*R*)

Financial assets
and liabilities (*F*)

Cash
(*C*)
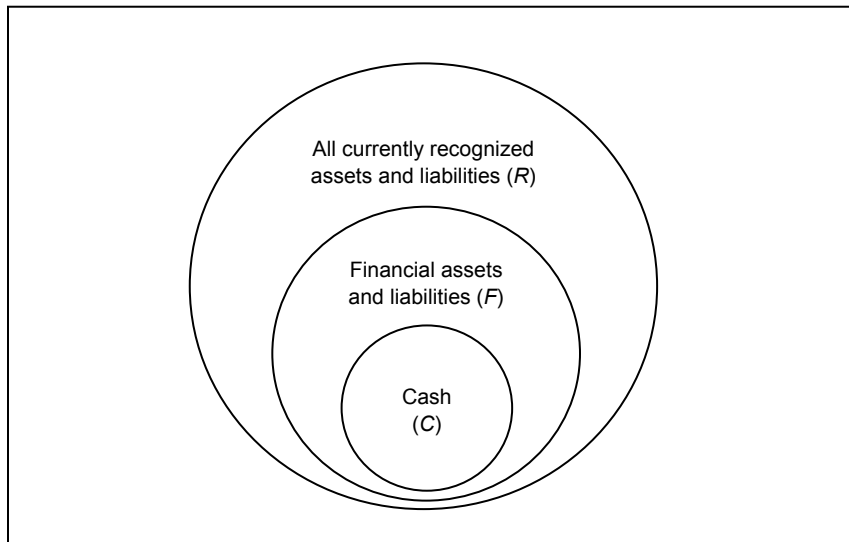
A. Accounting Systems and the Devices They Allow

If we think of R as being the set of all true assets and liabilities, each accounting system based on a subset of R is vulnerable to its own set of accounting devices.

The smallest possible set of recognized assets and liabilities is not shown in Figure 1: it is the empty set, which generates pure cash-flow accounting. The government's net worth is zero by definition, and a balanced budget is the only possible outcome. Letting $\varnothing$ denote the empty set and the associated system of accounting, we have, for all times t,

$$s_t^{\varnothing} = \Delta w_t^{\varnothing} = 0 - 0 = 0.$$

(The superscripts imply that the surplus is a reported surplus, not the true surplus, so we drop the prime.)

From equation (5), we can see that any transaction that reduces true net worth works as a deficit device in this system:

$$s_t^{\varnothing} - s_t = -\Delta w_t.$$

In particular, this system of accounting does not distinguish between meeting costs by running down the bank balance and meeting them by collecting taxes.

A more useful kind of accounting, cash accounting, recognizes cash as an asset but no other assets and no liabilities. Letting superscript C denote the set of assets and liabilities containing only cash, and letting a^c denote the value of the cash, we have

$$s_t^{C} = \Delta w_t^{C} = \Delta a_t^{c}.$$

Thus the reported surplus is the increase in the government's bank balance, and running down this balance is no longer a deficit device. But, because no other assets and liabilities are recognized, many other deficit devices are available. Borrowing is one. In the United States, some states and cities must balance their budgets but can do so by borrowing. The City of Chicago explains: "In accordance with the State of Illinois Municipal Code, the City produces a balanced budget" [but] "[t]he City's budget classifies as revenue . . . long-term debt proceeds" (City of Chicago, 2009, pp. 97, 105).

Another form of accounting recognizes liabilities and financial assets (including cash), but not nonfinancial assets. It is sometimes called modified accrual accounting. Letting F denote this set of assets and the associated system of accounting, we have

$$s_t^F = \Delta w_t^F.$$

Letting a^{nf} denote the value of nonfinancial assets, and assuming that nonfinancial assets are the only assets or liabilities not recognized in this accounting system, we have

$$s_t^F - s_t = -\Delta a_t^{\text{nf}}.$$

That is, the reported surplus is equal to the true surplus less the increase in nonfinancial assets. In this system, borrowing is no longer a deficit device, but the sale of nonfinancial assets increases the surplus while the purchase of nonfinancial assets reduces it.

Full accrual accounting of the kind illustrated by the *Government Finance Statistics Manual 2001* recognizes nonfinancial as well as financial assets. In this kind of accounting, the sale of nonfinancial assets and the cancelling of planned investment in such assets no longer reduce the reported deficit.

But even full accrual accounting is not necessarily complete in its recognition of assets and liabilities, and it is therefore vulnerable to accounting devices. For example, finance leases are typically treated as creating assets or liabilities for the lessee, but operating leases, which differ from finance leases only in degree, are treated differently. (Interestingly, Icelandic municipalities are now required to recognize assets and liabilities when they enter into operating as well as finance leases, after some municipalities used operating leases before the crisis to take on obligations without reporting liabilities.)

Similarly, rights and obligations that generate payments only in certain circumstances ("contingent assets" and "contingent liabilities") are sometimes recognized, but often not. When they are not, accounting devices are possible. For instance, governments can reduce their reported deficits and debts by issuing guarantees that create no liability in return for guarantee fees that therefore count as revenue (Brixi and Mody, 2002, p. 32).

B. Extended Fiscal Accounts

Over time, the rules for full accrual accounting may require recognition of more assets and liabilities (relating, for example, to guarantees and operating leases) and thus foil more accounting devices. Yet it will never be possible to draw a sharp and satisfactory line between the rights and obligations that are firm enough to constitute assets and liabilities, under definitions roughly similar to current ones, and those that are not. And thus even under full accrual accounting governments will always be able to reduce this year's deficit while simultaneously increasing expected future deficits. A simple example of such a device comes from Italy, where, in the run-up to the adoption of the euro, the government "levied a one-off eurotax to meet the Maastricht deficit target in 1997, but announced that 60% of the tax would be refunded in 1999" (Easterly, 1999, p. 71).

Under current accounting standards, all assets and liabilities are associated with future revenue or spending, but not all future revenue and spending are associated with assets and liabilities (see Stickney and others, 2010, e.g., p. 108). Problems such as the Italian tax device—as well as more general concerns about fiscal sustainability—create a case for recognizing assets and liabilities associated with all projected future spending and revenue. The new assets and liabilities would be associated with cash flows whose present values were not already incorporated in recognized assets and liabilities. We can denote the full set of assets and liabilities by E (Figure 1) and call the associated accounts *extended*. Extended accounts would generate a measure of extended net worth equal to the net present value of all projected future cash flows under current policy and a measure of the extended surplus equal to the change in extended net worth.

Extended accounts could supplement but could not replace existing accounts.[7] On the one hand, the present value of future spending on, say, healthcare is different from debt and can be reduced by changes in policy in a way that debt cannot be. Indeed, it is partly for this reason that such liabilities are not currently recognized. On the other hand, the present values of future taxes and spending are extremely uncertain and extremely volatile, even holding policies constant. They are also an order of magnitude greater than the value of other assets and liabilities, and fluctuations in them would swamp changes in the values of currently recognized assets and liabilities.

Yet, as the idea of a nested sequence of accounting systems suggests, extended accounts can be prepared without replacing full accrual accounting. Fiscal accounts can continue to report all existing indicators, that is, but supplement them with a new indicator of extended net worth and a new indicator of the deficit equal to the change in extended net worth.

This extension of the nested sequence of accounting systems is in one respect a natural step in evolution of fiscal statistics. The *Government Finance Statistics Manual 2001* currently generates indicators of the surplus and net worth for three nested sets of assets and liabilities: cash (C), liabilities and financial assets (F), and all recognized assets and liabilities (R). Adding a fourth set E that included assets and liabilities associated with future taxes and spending would generate indicators based on sets with the following relationships:

$$\varnothing \subseteq C \subseteq F \subseteq R \subseteq E. \tag{7}$$

And it would allow the presentation of fiscal results in the form shown in Table 1.

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[7]No government publishes extended accounts of exactly the kind discussed here, but the U.S. federal government now comes close, publishing, in a note to its full accrual accounts, estimates of the present values of its projected spending and receipts. See U.S. Treasury (2011) and FASAB (2009).

Table 1. Summary Extended Accounts

Set of Assets and Liabilities	Opening Balance		Clean Surplus		Closing Balance
C	w_{t-1}^{C}	+	s_{t}^{C}	=	w_{t}^{C}
F	w_{t-1}^{F}	+	s_{t}^{F}	=	w_{t}^{F}
R	w_{t-1}^{R}	+	s_{t}^{R}	=	w_{t}^{R}
E	w_{t-1}^{E}	+	s_{t}^{E}	=	w_{t}^{E}

Once assets and liabilities are classified into several sets, the largest of them including the present values of all projected future cash flows, it no longer makes sense to distinguish between assets and liabilities that are on balance sheet and those that are off. Similarly, it is no longer helpful to draw a sharp distinction between the government's true net worth or surplus and its reported net worth or surplus, since there are several measures of net worth and the surplus each with its own purpose. Yet suppose the government uses one of the sets of assets and liabilities as the basis of a fiscal target. Then it may be tempted to increase that surplus in ways that do not improve the surpluses derived from broader sets. For example, if the targeted surplus is s^{F}, it may be tempted to increase s^{F} in ways that leave s^{R} and s^{E} unchanged. For example, it may sell nonfinancial assets, which are in R but not F, in return for cash, which is in F. Or it may assume pension liabilities in E but not F, in return for cash and other financial assets in F.

More generally, a deficit device in this set-up is a transaction that increases a targeted surplus without increasing the surpluses derived from all the supersets of the set underlying the targeted surplus. If the targeted surplus is s^{J}, a deficit device is a transaction that increases s^{J} but not (at least by the same amount) s^{K} for some $K \supset J$. Letting $X\backslash Y$ denote the set of objects that belong to X but not Y, we can say that the device works by selling assets or incurring liabilities in $K\backslash J$ in return for assets, or the cancellation of liabilities, in J. Extended accounts do not prevent the use of deficit devices, but they do reveal them.

C. Fiscal Sustainability

As well as revealing accounting devices, extended accounts would show whether existing government policies were fiscally sustainable.

The requirement for fiscal sustainability is often written in terms of debt and future primary surpluses (surpluses excluding interest). In such a presentation, fiscal sustainability requires that the present value of future primary surpluses must be sufficient to repay existing debt. This presentation can be brought into line with modern accounting by allowing not just for debt but for all assets and liabilities in R. In this presentation, sustainability requires that the present value of future primary surpluses (surpluses excluding returns on all assets and liabilities in R) offset any imbalance in currently recognized net worth, w^R.

The present value of future primary surpluses excluding returns on all recognized assets and liabilities is the net value of the proposed new tax assets and spending liabilities. The set containing those assets and liabilities is $E \backslash R$. Thus fiscal sustainability implies that

$$w_t^R = -w_t^{E \backslash R}$$

It follows from (7) that

$$w_t^R + w_t^{E \backslash R} = w_0^E.$$

Thus fiscal sustainability at time t implies that extended net worth at t equals zero:

$$w_t^E = 0.$$

IV. DIRTY DEFICITS

Clean surpluses are simple and useful, but certain other surpluses are also interesting and are the focus of most fiscal analysis. Indeed, though the clean surpluses s^F and s^R are implicit in the framework of the *Government Finance Statistics Manual 2001,* they are neither reported on any of its four main financial statements, nor included in a list of supplementary measures (the clean cash surplus s^C is reported).[8]

A. Components of Clean Surpluses

Nonclean surpluses can arise from decompositions of a clean surplus into component parts. Because the clean surpluses of Table 1 arise from a nested sequence of accounting systems, each surplus except the first can be split into parts related to the preceding systems. For example, the increase in net financial worth is equal to the increase in cash plus the increase in the net value of financial assets and liabilities *other* than cash. We can therefore write the clean extended surplus as the sum of four other clean surpluses:

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[8]See IMF (2001, Figure 4.1, Table 4.2, and Box 4.1).

$$s^E = s^C + s^{F \backslash C} + s^{R \backslash F} + s^{E \backslash R}.$$

This kind of decomposition, though it appears useful, is not common. Other decompositions are. In cash accounting, the clean surplus is conventionally divided into parts "above and below the line." Traditional borrowing is classified below the line and the surplus that is most closely watched considers only items above the line. This stops borrowing being counted as revenue that increases the surplus. See, for example, the 1986 version of the IMF's manual on fiscal statistics (IMF, 1986). Modern cash-flow statements further divide above-the-line cash flows into those for operations and those for investments.[9]

In fiscal statistics, the change in net financial worth is divided into the parts related to transactions (*net lending/borrowing*) and other changes, while the change in net worth is divided into the *net operating balance* and other changes, along similar lines. Change in extended net worth could be similarly decomposed.

B. Devices Revisited

As in the case of borrowing under cash accounting, nonclean surpluses can sometimes foil accounting devices. But, when more assets and liabilities are recognized, nonclean surpluses can allow the use of certain devices that increase the reported surplus without increasing reported net worth.

Net lending/borrowing and the net operating balance are not usually vulnerable to such deficit devices because they are intended to capture all *transactions* in the relevant set of assets and liabilities, and devices involve transactions. Changes in net worth that occur outside transactions are made up of changes in the market prices of the government's assets and liabilities and changes in the volumes of those assets and liabilities not related to transactions (such as the growth of trees in a forest). Such changes are usually unpredictable or out of the government's control, and thus cannot be the basis of accounting devices.

But there are still opportunities to employ devices in some implementations of net lending/borrowing and the net operating balance. Zero-coupon and inflation-indexed bonds offer an example. These bonds generally appreciate over their lifetimes, the payment of interest coupons being wholly or partially replaced by that appreciation. But governments

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[9]In the *Government Finance Statistics Manual 2001*, the statement of sources and uses of cash shows "net cash inflow from operating activities," "net cash outflow from investments in nonfinancial assets," and "net cash inflow from financing activities" (IMF, 2001, Table 4.2). For the decomposition to be complete, another component—increase in cash from changes in market prices—must be included. The most important sources of such changes are movements in exchange rates that affect the domestic-currency value of the government's holdings of foreign currency.

sometimes report only the coupon payments as interest and can thus use such bonds to defer or avoid the reporting of interest. In Iceland, for example, when the government has issued inflation-indexed debt, its balance sheets have recorded increases in the outstanding value of debt caused by inflation, but reported interest expense has not. (The government is planning to improve this aspect of its accounting.)

In modern fiscal statistics, this problem is generally avoided by having interest expense determined not by the cash flows that are labeled as interest payments but by a calculation that spreads interest costs smoothly over the term of the borrowing. More specifically, interest expense is normally calculated by assuming that the interest rate is the discount rate that, at the time of borrowing, makes the present value of forecast debt-service payments equal to the amount borrowed.[10]

Yet the Irish government was able to defer the reporting of interest in 2011 and 2012 by introducing a grace period in a debt to Anglo Irish Bank, even though the rules for European fiscal statistics normally require interest expense to be spread smoothly over the life of the debt, irrespective of the timing of cash payments, and even though "to compensate for interest foregone in these two years a higher rate of interest will be paid in 2013 and subsequent years" (Eurostat, 2010a, p. 1). Eurostat agreed with the Irish statistical agency's view that no interest expense should be recorded during the grace period and referred to a paragraph in its manual on the measurement of government debt and deficits that said

> For instruments bearing a zero rate of interest during the grace period: no interest is to be accrued, as the cost of borrowing really is zero. This statement applies even if the rate of interest applied in the following time period is adjusted so that the final yield is roughly similar to "normal" conditions over the total life of the instrument (Eurostat 2010b, p. 57).

The 2012 edition of the manual says instead that interest expense must generally be recognized during a grace period. An exception is allowed only if the government can redeem the loan during the grace period at face value and interest payments after the grace period are not increased to compensate the lender for their absence during the grace period (Eurostat, 2012, p. 58).

V. Conclusion

In the simple budgetary world considered at the beginning of this paper, ensuring fiscal transparency is straightforward. If accounting rules require the government to recognize all

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[10]See IMF (2001, paragraphs 6.43–44). The use of a single discount rate does permit deficit devices when the yield curve is not flat.

its assets and liabilities, and the surplus is clean, there is no room for deficit devices. The reported deficit will equal the true deficit, fiscal rules will work as planned, and voters will not be misled. Alternatively, the government can be required before the election at the end of the first period to publish a forecast of the fiscal accounts for the second period. As long as the accounts and the forecasts follow a single set of internally consistent accounting rules, this, too, will reveal when the level of spending is unsustainable even if those rules leave some assets and liabilities unrecognized.

In reality, of course, ensuring fiscal transparency is not so simple. Although the range of possible deficit devices can be progressively narrowed as the focus of attention shifts from the cash deficit to the modified accrual deficit to the full accrual deficit and finally to the extended deficit, each step in this progression adds to the balance sheet new rights and obligations that differ in character from those already present there, and creates new opportunities for measurement error. Thus there is no measure of the deficit that is perfectly satisfactory; selecting a single indicator as the basis of a deficit target requires a trade-off to be made.

But whatever choice is made fiscal transparency can be enhanced by publishing extended accounts that include a sequence of net balance-sheet indicators (cash, net financial worth, net worth, and extended net worth) along with the corresponding sequence of clean surpluses and their various decompositions. Although the publication of such extended accounts could not stop the use of devices designed to improve a targeted deficit, it would reveal those devices by showing whether or not other indicators had also improved.

The preparation of extended accounts would, however, raise many questions not considered here. Some, such as how to define current policy, are already answered in some way by governments that prepare the long-term fiscal projections that would be necessary for preparing extended accounts. Others are new. For example, how can the double-counting of future cash flows be avoided in practice? What discount rate or rates should be used to account for the time value of money, and perhaps the cost of risk-bearing as well? And what implications would extended fiscal accounts have for accounts and statistics prepared for the government's counterparties?

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