SI-November6-9.4
Robert Leeson
rleeson@stanford.edu

Abstract
This paper outlines a pre-tax savings-into-capital flow that can supplement existing financial flows. This automatic stabilization model produces a smaller financial sector, fewer macroeconomic externalities, reduced investment volatility and more stable exchange rates. It also lends itself to the fiscal control of inflation and allows for the possibility of negative interest rates. This system allows interest rates – not national income – to bear the burden of adjustment with respect to domestic shocks; and offers very strong self-stabilizing properties with respect to external shocks.

Stabilizing Intermediation: Re-engineering Financial Flows

1. An existing, near-perfect, savings-into-'capital' flow[i]

In a bank-less, Arrow-Debreu general equilibrium world, there would be no financial intermediaries: savers and investors equipped with perfect information would interact in costless ways at optimal prices.[ii] At the other extreme, Ponzi schemes benefit neither saver nor investor – just the intermediary. Current financial systems sit somewhere on this spectrum between perfect market and perfect theft.

Financial intermediation is more often associated with destabilizing, rather than stabilizing influences; however, a modified version of an existing savings-into-'capital' flow can provide a permanent antidote to the periodic crunching of credit. One type of existing intermediary - the agencies that auction and manage government debt - sits close to the perfect market extreme: in the United States, the Treasury's Bureau of Public Debt (BPD); elsewhere, for example, the Australian Office of Financial Management (AOFM).

The AOFM is the almost invisible hand which – via competitive tender – turns savings into socially productive financial instruments. In October 2010, the total face value of Australian Commonwealth Government Securities on issue was AU$$163.15 billion; the process of creating and auctioning these financial instruments employs around thirty-five staff (only a small number of whom conduct auctions).[iii] A simple stock measure of labor productivity produces a figure of over AU$4.6 billion per AOFM worker.

The BPD performs a similar and equally inaudible role.[iv] On September 13, 2010, the outstanding U.S. public debt was US$13.2 trillion; each auction costs approximately US$250,000. This "Bureausian" savings-into-capital model provides a method of *supplementing* existing intermediary flows - either through an existing agency (e.g. the BPD) or through a new but parallel agency: a Bureau of Public Savings (BPS).

This Bureausian stabilization model combines four mechanisms. First, the introduction of a Consumed Income Tax Structure (CITS) to raise the level of household savings; second the collection of these pre-tax savings through Individual Savings Accounts (ISA); third the "sweeping" of these ISA deposits into National Savings Bonds (NSB); and fourth the auctioning

of these NSB for specific private capital formation purposes: Gross Fixed Capital Formation (GFCF). This CITS-ISA-NSB-GFCF Bureausian channel can supplement existing intermediation flows.

Adding a new savings-into-capital flow does not necessarily disrupt existing capital markets;[v] but can help mitigate the *consequences* of financial crises (the macroeconomic impact would be less severe). The system allows interest rates – not national income – to bear the burden of adjustments with respect to domestic shocks and has strong self-stabilizing properties with respect to external shocks. Fiscal policy – increasing the cost (but not the market price) of consumption relative to saving – becomes the superior instrument to tackle undue rises in the consumer price index.

Human capital is probably the most socially valuable member of the capital family. But for purposes of expositional clarity, this paper will focus on *one* pre-tax savings motive (funding retirement income) being channeled into *one* type of capital formation (GFCF). Fluctuations in GFCF are important in the generation and propagation of business cycles; an uninterruptible flow of savings-into-GFCF would stabilize the economy. Equally, such GFCF expenditures are easy to track: the tax code clearly defines these items. If this second savings-into-capital flow holds water, then a third (and a fourth and a fifth) flow can be considered (savings to finance human capital formation, medical expenses, residential home purchase etc).[vi]

2. Overview of the Bureausian model

This CITS-ISA-NSB-GFCF Bureausian model is embedded in ten sequential steps (or commandments). Only steps seven to ten are structural (essential for the proposal to work); the first six are desirable but not essential (system-specific, not structural).

Fiscal rationality

First, following the young Milton Friedman (1948), the level and composition of government expenditure (G) should be designed according to rational principles:[vii]

1. $G = G^*$

Second, marginal CITS rates should target a balanced budget each year:

2. $T = G = G^*$

Third, income taxes should be replaced by CITS (all other expenditure taxes – collected at the point of purchase – could be abolished or retained).

For an individual, income (Y) has three components: consumption (C), taxation (T) and savings (S).[viii] The traditional CITS literature focused on a variety of allowable pre-tax savings vehicles; but to derive stabilization benefits, a single vehicle (ISA) is preferable.

Since under CITS, earning income ceases to be a taxable event, a rational tax avoider would deposit all income into an interest-bearing ISA; withdraws (to meet expenditures or to make

post-tax asset purchases) would be subject to a withholding tax. (Thus, as an approximation, S = ISA.) At the end of each tax year, net additions to ISA are deducted from income to derive taxable consumption:

3. $Y - ISA = C + T$

Fourth, an optimal rate of ISA (as a proportion of national income) should be targeted:

4. $ISA = ISA^*$

Before savings came to be seen as a leakage, and before the State assumed the role of provider with respect to retirement income, a significant body of literature addressed this issue (see for example Pigou 1924, 25; Ramsey 1927).[ix] ISA^* could be defined in several ways; for the sake of analytical simplicity, it will be assumed that ISA^* should be actuarially chosen so as to avoid future unfunded retirement liabilities.[x]

Fifth, ISA could be collected through bank deposits or payroll deductions (or a combination of the two); ISA funds should be partly accessible at any time to the depositor (subject to withholding tax).

Sixth, ISA depositors could receive a capital guarantee, a nominal interest or a purchasing power guarantee.

Four structural features of the Bureausian model

Seventh, the ISA deposits should be swept into an NSB pool, administered by an apolitical body such as a Bureau of Public Savings (BPS).

Eighth, this BPS should auction these NSB to financial intermediaries through price competition (interest rate bids).

Ninth, winning auction bidders should be rules-constrained with respect to the *use* of these pre-tax household savings: every dollar must be loaned for GFCF purposes within a short specified period, or returned at a penalty rate of interest.

Tenth, securitization of these NSB loans should be prohibited.

3. The use of savings

The case for replacing the income tax with CITS has a long and distinguished history and nearly all countries have embraced tax-privileged savings accounts. One country, Singapore, has combined CITS with the central collection of savings, via the Central Provident Fund (CPF). But the CPF rules allows some pre-tax funds (subject to caps) to be invested in specific existing (as opposed to newly-created) assets (shares, gold, bonds etc).

There are seven main (overlapping) categories of household savings: pre- or post-tax; voluntary or compulsory; general, retirement or special purpose. With respect to the *use* of these funds

there are three main categories: financing budget deficits;[xi] purchasing new capital assets (via, for example, Initial Public Offerings);[xii] and purchasing existing assets.[xiii]

Financial intermediation is a simple flow: from the current savings of one agent into future consumption (for the same agent) and current lending (for a separate agent). As individuals, savers have insufficient reason to be concerned with the social consequences of their personal savings (expected future consumption is the main criterion). But socially, we have every reason to see household savings transformed into new productive capital (the higher the economy's productivity, the higher are future consumption opportunities).

The CITS literature has not adequately addressed the *use* of savings. Previously, pre-tax savings were referred to as "Qualified Accounts' (*Blueprints for Basic Tax Reform* 1977, 114) and "registered" as opposed to "unregistered assets" (*Structure and Reform of Direct Taxation* 1978, 175). It was envisioned that these accounts would be left in the hands of financial intermediaries. Whilst one objective of CITS (increasing personal savings and thus reducing future state pension liabilities) was being addressed, little, if any, thought was given to the social use of these savings.

John Stuart Mill (1884, 179), for example, stated that "all savings, speaking generally, are invested". Yet when financial intermediaries hoard resources to preserve their own balance sheets, savings are not necessarily lent for capital-formation purposes. Moreover, when savings are used to purchase existing assets, this may marginally add to liquidity but does not directly add to the stock of productive capital.

Referring to his version of the *Expenditure Tax*, Nicholas Kaldor (1955, 11) noted that "the full implications of the case were unknown to the economist of an earlier generation." Since then, financial engineering has multiplied the opportunities for crises. This paper extends the CITS literature by addressing the issue of the use of household pre-tax savings.

4. Toxicity: an engineering analogy

In the nineteenth century, the U.S. suffered both cholera and financial epidemics: victims of the former are thought to include the 11th and 12th Presidents (Zachary Taylor and James Polk), the daughter of the 13th (Millard Fillmore) and the mother of the 7th (Andrew Jackson). Cholera also hit the United Kingdom (1831-32, 1848-49 and 1853-54).

For the previous two thousand years or so, there was a consensus belief in the "miasma" (or *nebula*) bad air theory of disease. In the nineteenth century this was replaced by the germ theory of disease (viruses and bacteria). Scientists of an emerging discipline (epidemiology) discovered the presence of a "toxic" substance (sewage) in the water supply.

In the 1870s, cholera and yellow fever epidemics caused 10,000 deaths in Memphis, Tennessee. An engineer (George Waring) was commissioned to design a separate sanitary sewage collection system, thus ending the era of Memphis cholera epidemics.[xiv]

Edwin Chadwick's (1842) *Inquiry into the Sanitary Conditions of the Labouring Population of Great Britain* concluded that "high prosperity in respect to employment and wages, and various

and abundant food" offered no protection "from attacks of epidemic disease, which have been as frequent and as fatal in periods of commercial and manufacturing prosperity as in any others." Chadwick calculated the private and social costs of tolerating the presence of these toxic substances. His solution was simple: "where the removal of the noxious agencies appears to be complete, such disease almost entirely disappears".[xv] In 1859, the chief engineer of London's Metropolitan Board of Works (Joseph Bazalgette), created a sewer network for central London, thus ending the era of London cholera epidemics.[xvi]

Sewage employs no lobbyist; unlike rats, sewage cannot use intelligence to circumvent restrictions. In the nineteenth century, simple public health re-engineering began to eliminate cholera from developed countries. Despite lobbyists and the self-interested intelligence of a sector that has produced and circulated toxic assets, in the twenty-first century, simple financial re-engineering can separate pre- from post-tax savings. A clean channel – unpolluted by toxic substances – can transform pre-tax savings into socially productive capital.

5. Step five: Individual Savings Accounts

The proportion of national income that is saved as a result of CITS incentives should be deposited into ISA. These ISA could be the pre-tax equivalent of post-tax bank deposits, collected by banks and thus backed by the Federal Deposit Insurance Corporation (FDIC) type insurance; or pre-tax payroll deductions (a Singapore CPF-type arrangement). These ISA deposits could be voluntary (driven by tax-minimization concerns), compulsory, or a combination of the two.

Blueprints for Basic Tax Reform (1977, 120) proposed that withdrawals from pre-tax savings accounts should be added to taxable income in the year of withdrawal. Alternatively these withdrawals could be taxed at a preferential rate (a declining function of the time of the deposit, for example, five percentage points per year, thus eliminating all tax liability after twenty years).

Likewise, these ISA could be split into distinct areas with different accessibility criteria: ISA (retirement), with generally no access until age 55 or older; ISA (education) with tax-free access at any time to finance accredited human capital formation; ISA (medical) with tax-free access at any time to finance health care expenses; plus ISA (general), with access at any time subject to a provisional CITS withholding.

6. Step six: the return to ISA depositors

These ISA deposits could be either (a) capital guaranteed, (b) earn an "enterprise" rate of interest (in line with the performance of the real, GFCF, economy: the average yield of the NSB auctioned each period) or (c) purchasing power guaranteed. [xvii] The capital guarantee might misalign incentives (the government would gain revenue from inflation).[xviii] The full enterprise rate may be confusing to less sophisticated savers; and, because of the possibility of negative interest rates, might be the source of unnecessary anxiety.[xix]

The savings public is familiar with post-tax purchasing-power guarantees (e.g. Inflation Protected Securities): a market already exists. Therefore, the third option, the pre-tax (i.e. more attractive) variant, may be optimal. With a purchasing-power guarantee, a real interest rate would

generate a surplus – which could be returned to either the taxpayer or the saver. For the sake of analytical simplicity, most of the analysis that follows assumes a purchasing-power guarantee.

7. **Step seven: ISA deposits swept into National Savings Bonds**

There is a long history of the central collection of savings (often initially associated with the funding of government debt). The first Post Office Savings Bank was established by the British government in 1861. The (now) renamed National Savings and Investment agency currently manages 9% of the household national savings market and funds about 16% of the national debt.[xx]

The Banker's Panic of 1907 encouraged the establishment of the U.S. Postal Savings System (1911-1967). Deposits reached a peak in 1947 (almost $3.4 billion) with more than 4 million depositors (reputedly, the country's largest single savings bank).[xxi] Japan Post once held 25% of household assets (possibly the largest holder of personal savings in the world) and about one-fifth of national debt.

Canada Savings Bonds (backed by the Bank of Canada) are purchasable via payroll deduction; Canadians are also able to save via tax-privileged Registered Retirement Savings Plans. In 1945, the Commonwealth Savings Bank (then the central bank of Australia) and the state savings banks held almost half of total deposits (Schedvin 1992).

Singapore has perhaps gone furthest with the central collection of savings. In 1877, the British government established a Post Office Savings Bank (by 1951, the bank had served 100,000 depositors); in 1955, the newly-independent government established the CPF. Currently, 34.5% of pre-tax private sector wages (for workers aged below 50) are – through compulsion - channeled into three CPF accounts on a prescribed proportion basis: Ordinary (home purchase, investment and education) 55.09%, Special (retirement) 20.28% and Medisave (medical) 24.63%.[xxii]

8. **Step eight: auctioned price competition**

Before the 1970s (with two exceptions, 1935 and 1963), the U.S. government financed federal deficits through fixed price offerings (Meltzer 2009, 144, 832). Milton Friedman (1960, 65) objected that the terms of an offering were "crystal ball gazing … and plain guesswork". If market demand was underestimated, the offering would fail through under-subscription; an oversubscribed offering would give yield away at taxpayer expense. Any added premium (to avoid an under-subscription) compounded the error, allowing subscribers to "free ride" by rapidly and profitably re-selling their allotment.

An alternative auction process was experimented with and by 1972, Paul Volcker (Treasury Under Secretary for Monetary Affairs) declared that this "striking innovation" in debt management had "met or surpassed every expectation so far, to the advantage of the Treasury and the market" (cited by Garbade 2004, 36). By 1976, the auction revolution had triumphed (allocating, at least in principle, further independence to monetary policy).[xxiii]

In Walrasian tâtonnement, an auctioneer cries out a price, agents indicate how much they would like to supply or demand at that price, and a fresh price is cried out until equilibrium is achieved. On the demand side of the Bureausian market, each intending intermediary would (presumably) be in direct or indirect contact with a multitude of business capital decision-makers (those whose behavior is captured by the demand for GFCF funds). The demand for such GFCF funds is (presumably) primarily determined by the cost (the interest rate charged) and the expected return (projected sales, animal spirits etc).

Each GFCF demander would cry out (to the intending intermediary) an interest rate at which they expect to profitably use an $x million loan. The intermediary would then calculate a cost-plus-mark-down (where costs include a risk premium plus an FDIC-style insurance premium) and then make a NSB bid.[xxiv] If (auction) successful, the intermediary would sign a contract to borrow - and to lend - $x million.

If (risk management) successful, the intermediary would cover their costs and make a return to their shareholders; if (risk management) unsuccessful, the shareholders would cover any shortfall with their capital adequacy requirements. In the event of capital adequacy inadequacy, the FDIC-style insurance policy would repay the balance of the loan.

9. **Step nine: rules-constrained lending**

Currently, banks are the beneficiaries of a large amount of discretion: when they take deposits they are generally under no obligation to loan these funds for any particular purpose.[xxv] Indeed, in times of financial crisis (when household savings tend to increase), they sometimes choose to barely lend at all (thus further exacerbating the crisis). Intermediaries should be rules-constrained with respect to the use of pre-tax household savings.

The NSB contract should guarantee that every dollar won at auction is loaned for GFCF purposes within a short and specified period (or returned at a penalty rate of interest). This category should include GFCF items codified by the taxation office for deductibility purposes (building, plant and structures, equipment and machinery etc).[xxvi] The relevant banking regulatory/supervisory/auditing/taxation authority would be responsible for ensuring that this criterion was met.

This re-engineering solution would eliminate the "for what" discretion that intermediaries currently enjoy (they would not be allowed the discretion to use pre-tax household savings to bolster their capital adequacy, buy bonds or hoard for precautionary purposes). Changing the source of funds should not affect the "to whom" discretion with respect to the use of these funds. But the Bureausian system must leave no legitimate suspicions about politically-driven capital allocation.

Intermediation involves incentive compatibility issues. The integrity of the average private bank employee is intrinsically little different from their public counterparts; however, the incentives faced by major decision-makers are. As a result, some private sector intermediary behavior reflects adversely on our wider economic system. Currently, intermediation sometimes involves some off-balance activities and less-than-adequate transparency. Regulation is a (short-run) constraint on returns; for some intermediaries, fines are a minor business expense.[xxvii]

Repeated monetary policy errors co-exist with exemplary standards of integrity: for the Federal Reserve, over nine decades "without major scandal" (Meltzer 2009, x, 227, n302, 1234). Likewise, BPD employees reports to a non-political, career civil servant, the Fiscal Assistant Secretary. BPD auctions are undertaken through electronic bids received in (visibly) transparent dealing rooms, overseen by a variety of highly suspicious regulators (including counter-terrorism operatives).

The Bureausian process must be equally internally monitored; transparency must also allow for outside exposure. In particular, specific steps must be taken to ensure that auction price competition is not undermined through collusion. In the U.S. it would be difficult to organize 7,000 charted deposit-taking institutions into a cartel (the incentive to chisel would tend to undermine such efforts; as would the entrance of low-cost, non-deposit-based auctioneers).[xxviii] But in countries with more concentrated banking systems, the collusion risks are greater.

The Bureausian system switches the source of some intermediary funds from deposit-based to auction-based. The infrastructure costs of winning auction funds are less than the cost of obtaining deposits. This would tend to attract new low cost entrants; companies with extensive business connections (firms of accountants perhaps) might also create bank-chartered subsidiaries to auction for NSB funds.[xxix] Bank regulators must be prepared to charter new (fully qualified) entrants.

10. Step ten: no securitization

Incentive compatibility is introduced by obliging the intermediary to carry the default risk of each individual GFCF loan; the prohibition of securitization improves risk management practices. It would, therefore, not be possible for intermediaries to hedge their risks by transforming potentially non-performing assets into a potentially non-performing economy.[xxx]

However, about 1% of U.S. banks experience difficulties each year (either because of poor risk management, bad luck or criminal behavior). Some recipients of NSB funds will also experience difficulties: it is therefore essential that such auction bidders be covered by capital adequacy ratios and FDIC-style insurance.

11. Implications for stabilization policy

11.1 Investment volatility

The nominal interest rate would be fixed for the duration of the GFCF loan (low and stable inflation would generate stable real interest rates). This type of predictability would remove one element of uncertainty from the GFCF decision-making process. Maturity mismatch would also be eliminated.

The Singaporean government uses discretionary variations in CPF employer contribution rates to fine-tune the economy. The CITS-ISA-NSB-GFCF flow goes further – by providing an automatic, market-based stabilization mechanism.

Some countries have compulsory savings;[xxxi] others rely on social security taxation. The Bureausian system replaces social security taxation: ISA* could emerge through compulsion, tax-minimization or a combination of the two.

Any compulsory ISA component would be a function of income. If ISA were purchasing-power-guaranteed, voluntary ISA additions would be determined by the interaction of individual preferences with respect to the preferred time profile of consumption and external incentives (CITS rates).

With a purchasing-power-guarantee, ISA would be (largely) determined by marginal CITS rates and could thus be modeled via a perfectly inelastic supply curve: a vertical line (invariant with respect to the interest rate). The location (horizontal intercept) of the supply curve would thus be (largely) determined by marginal CITS rates. Any instability in the demand for these funds (driven by 'animal spirits' etc) would result in variations in the interest rate - not in the *volume* of NSB funds applied to GFCF:

   5.   GFCF = ISA*

Consider three GFCF demand curves: at the mid-point of the business cycle, boom and recession. At the mid-point, the Bureausian system may simply replicate existing outcomes: intermediaries may fund an identical volume of GFCF. However, the Bureasian system still delivers at least two additional benefits.

First, auction-sourced funds are presumably less expensive to collect than deposit-sourced: with adequate competition, this should reduce the cost of intermediation and thus the cost of capital formation. Second, with a purchasing power guarantee to ISA depositors, even if the real "stop out" equilibrium interest rate was zero, price discrimination still generates a surplus (ABC) which can be returned either to ISA accounts or to taxpayers in the form of reduced future liabilities.
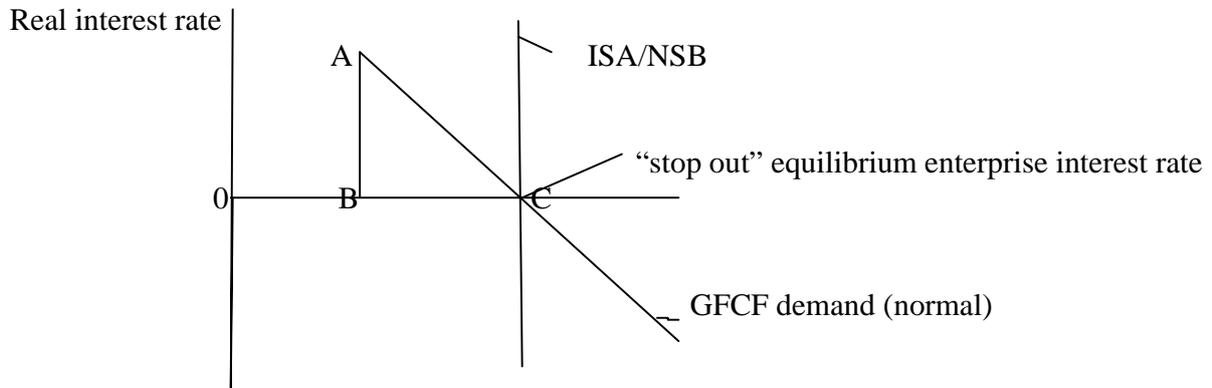
Real interest rate

A

ISA/NSB

"stop out" equilibrium enterprise interest rate

0

B C

GFCF demand (normal)

Fig 1. BUSINESS CYCLE MID POINT

In a boom, the "stop out" equilibrium real interest rate is likely to be positive; with a purchasing power guarantee for ISA depositors, the surplus (ABCD) will be greater. Booms are sometimes accompanied by asset price bubbles – often intermediary-funded. The Bureasian system eliminates the possibility that intermediaries will channel savings into bubble-prone areas at the expense of GFCF (post-tax savings, however, may still fund bubbles). With ISA* measured as a proportion of aggregate income, as boom-time income rises, so too will ISA* and thus GFCF.
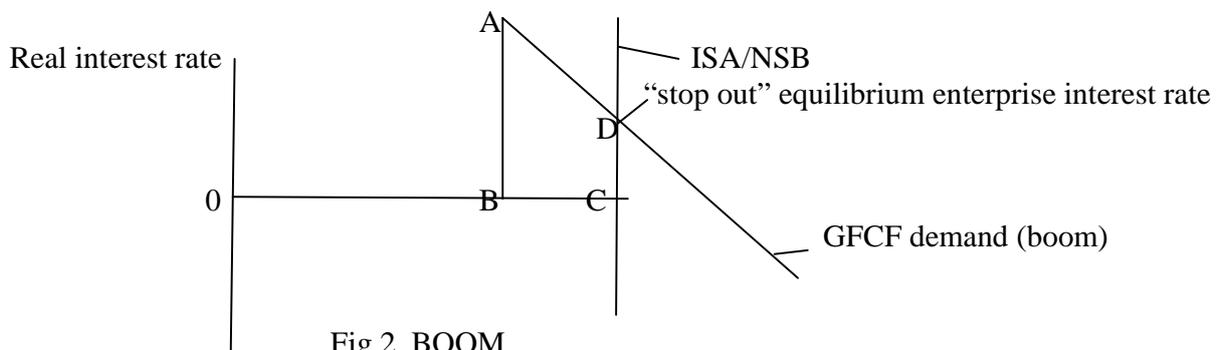
Real interest rate

A

ISA/NSB

"stop out" equilibrium enterprise interest rate

D

0

B C

GFCF demand (boom)

Fig 2. BOOM

Recessions are often associated with credit crunches: the Bureausian system eliminates this possibility.

Real interest rate

ISA/NSB

A

0

B C D

"stop out" equilibrium enterprise interest rate
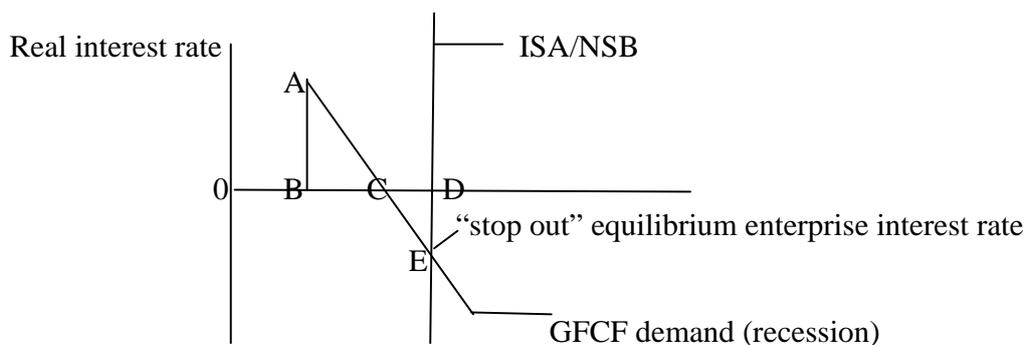
E

GFCF demand (recession)

Fig 3. RECESSION

With a recession GFCF demand curve, the real enterprise "stop out" equilibrium interest rate may be negative (although the supply of ISA funds might fall as national income fell, counteracting this negative tendency). With price discrimination, there would probably be a surplus (ABC); the triangle (CDE) above the GFCF demand curve but below the zero real rate of interest line represents a subsidy from the taxpayer. If ABC < CDE, this implies an overall investment-tax-credit-style subsidy: a more appropriate automatic stabilizing response that a temporary tax cut to consumers.[xxxii]

The demand for GFCF funds represents a decision to incur current (and recurrent) costs in the expectation of both future revenue and future recessions. In recessions, investment decisions are often postponed (thus adding to the downturn); any increase in household savings is often accompanied by an intermediary-driven credit crunch. When apprehensive lenders interact with apprehensive borrowers, recessions can deepen.

This is caused by a lack of incentive compatibility between social interests and the private interests of intermediaries: the Bureusian nexus removes this discretion from intermediaries. The possibility of a negative real – or even nominal – "stop out" equilibrium interest rate (fixed for the duration of the loan) creates a market-based incentive to bring forward, rather than postpone, investment decisions.

11.2 **Export income volatility**

Variability in the terms of trade and export income can propagate business cycles. Existing income/consumption hybrid tax systems provide incentives that exacerbate this instability. The Bureausian system provides incentives (both automatic and discretionary) that reduce this instability.

The CITS literature has long objected to the differential tax treatment of savings. Time deposits are effectively taxed twice: they are sourced from post-tax income and the inflation-unadjusted interest (the nominal capital gain) is typically added to taxable income. At the other extreme, some countries allow pre-tax income (the interest paid on borrowed funds) to fund savings-into-inflation-prone-assets (typically, second hand shares and investment properties). This distortion exacerbates business cycles. CITS removes this distortion and has superior stabilization properties.

A temporary boom in export income is transitory, rather than permanent income. A windfall rise in transitory income increases consumptions/savings opportunities: a progressive income tax propels recipients into higher marginal tax brackets. An increase in tax revenue would dampen the upswing; but hybrid tax incentives fuel the boom.

As export income increases, so does the incentives to direct pre-tax income into the negatively geared purchase of shares and investment properties. For an individual, this is a form of pre-tax-

savings; but in aggregate, the purchase of a second hand asset results in zero net investment. Asset prices in the affected sectors are likely to rise.

With a flat point-of-sale tax, the cost of consumption remains unchanged as income rises. Negatively geared savings have increased; the increase in disposable income can fund increases in consumption. As asset prices rise, current valuations of household wealth and thus (via the wealth effect) consumption will also rise.

Demand for asset and consumer items has risen. In the absence of supply responses, prices will rise in both sectors: tax-fuelled inflation. Resources will tend to shift towards the production of consumer items (and shift out when the boom ends). Inflation-targeting central banks may be forced to raise interest rates to dampen aggregate demand and price pressures.

In contrast, CITS offers automatic stabilizing incentives as windfall export income rises. The cost (but not the market price) of consumption rises at higher levels: tax can be avoided by increasing ISA deposits. The increase in consumption will generate an increase in tax revenue; the increase in ISA will increased the funding of GFCF.

More aggressively, the progressivity of CITS rates could be increased during an export boom. Increasing boom-time income tax rates would be a disincentive to shift to the export sector; increasing boom-time CITS rates increases the attractiveness of savings.

When export income falls (negative transitory income), recipients fall into lower marginal CITS brackets: the cost of consumption falls. ISA deposits made from positive transitory income can now be withdrawn (subject to the lower marginal tax bracket). Consumer expenditure might rise in response to the fall in export income: a strong self-stabilizing property.

11.3 Inflation control

The fiscal control of inflation

Fiscal rationality implies both public balance, $G^* = T$ and private inter-temporal balance, $ISA = ISA^*$ and $C = C^* = LCO$ (the Life Cycle Optimum, leaving sufficient resources to finance future consumption).

Targeting ISA^* via compulsory savings has two advantages. First, one instrument (CITS rates) has one target ($T = G^*$); second, the inflation-targeting operating characteristics are superior (requiring less macroeconomic discretion).

Alternatively, marginal CITs rates could aim at both public and private balance. Whilst structural levels of G and T should be determined by elected representatives, an inflation-targeting body – such as a central bank – could annually fine tune T to keep C close to C^* (and thus dampen undue rises in the consumer price index).[xxxiii]

With compulsory savings targeting ISA^* there would only be random variations around C^*. If ISA^* is targeted through CITS rates, more deviations are possible. If there is a departure from the LCO component of fiscal rationality and resources shift from savings to current consumption

(C > C*), two adverse consequences will follow: consumer prices will tend to rise, and savings will be sub-optimal (ISA < ISA*).

The system has some self-stabilizing properties. The fall in ISA will, ceteris paribus, create a new higher "stop out" equilibrium rate of enterprise interest and a lower level of GFCF funding. In so far as prices have risen above average costs in the consumer goods sector, resources that were previously devoted to GFCF will enter the consumer goods sector – increasing supply and thus tending to exert downward pressure on prices. The higher enterprise interest rate will (with an ISA purchasing-power guarantee) generate a larger surplus; higher levels of C will also increase T (especially with progressive rates).

These counter-cyclical forces may moderate price rises; but inflation has a tendency to cause countervailing distortions. Fiscal policy should therefore tackle the issue at source.

If fiscal rationality is associated with the "natural" rate of (enterprise) interest and a relatively stable price level, and if sub-optimality (C > C*) is associated with undue inflation, the policy conclusion is clear: raising end-of-year CITS rates will tend to dampen sub-optimal C (by raising ISA), without adding to the price level.[xxxiv]

In Wicksellian analysis, the "natural" rate of interest is neutral with respect to price movements;[xxxv] any rise in consumer prices when C = C* = LCO could be regarded as the "natural rate of inflation" (not to be tackled by reducing the demand for consumer goods, but by addressing supply issues).

The price level may also rise because of upward pressure on input costs. If policy makers respond by raising CITS rates, ISA will also increase, the enterprise interest rate will fall and the volume of GFCF funding will increase. In so far as this will increase capital per worker and thus productivity this should, ceteris paribus, tend to exert downward pressure on production costs (a countervailing supply side response). The Bureausian nexus thus provides a market-based antidote to both demand-side and supply-side consumer price inflation.

In a Wicksellian world, inflation is propagated by monetary authorities lowering the interest rate below the natural level (the appropriate policy response is to raise interest rates). In the Bureausian world, inflation is propagated by sub-optimal savings (ISA < ISA*) which raises the enterprise interest rate. The appropriate policy response is to raise CITS rates (and thus ISA) which will tend to lower the enterprise interest rate.

CITS targets consumer spending (and thus consumer prices) directly; this virtuous fiscal-induced anti-inflation spiral will tend to increase savings, wealth, productivity, employment and tax revenue. [xxxvi]

The monetary control of inflation

In contrast, the vicious monetary-induced anti-inflation spiral operates through a long and damaging series of adverse shocks (the transmission mechanism) and tends to increase unemployment, bankruptcies, home foreclosures, budget deficits and the exchange rate.

First, an anti-inflation increase in interest rates raises the future cost of funding government debt and thus increases future tax liabilities.

Second, debt-financed firms will face increased borrowing costs.[xxxvii] If some of these firms operate on a mark-up pricing basis, this anti-inflation policy will, at least in the short-run, impart upward momentum to prices.

Third, if average costs in the consumer sector rise above prices, this will tend to cause sectoral exit. This reduction in supply will tend to impart upward pressure on consumer prices.

Fourth, the exit of debt-financed suppliers from the consumer goods sector will tend to reduce competitive pressures. Entrenched equity-financed firms will acquire enhanced concentration ratios and market power.

Fifth, the rise in interest rates will tend to reduce investment and thus future productive capacity.

Sixth, the cost of debt-financed consumer items will rise; apprehensive consumers will also tend to save rather than spend. If household savings are hoarded by apprehensive financial intermediaries, vault cash and bank reserves will increase and the money supply will fall. This may require further corrective policy action.

Seventh, the rise in interest rates will, ceteris paribus, tend to attract an inflow of hot international money, thus exerting upward pressure on the exchange rate and adverse pressure on the trade-able goods sector (which will tend to shed labor).

Eighth, other interest-sensitive sectors (such as residential housing) will be adversely affected.

Ninth, the general contraction in demand will reduce employment and income and increase unemployment.

Tenth, tax revenues will fall and transfer payments will increase. The government deficit will become larger.

Informational burdens

Monetary policy is frequently associated with error (Meltzer 2009). Such errors are inevitable when a highly complex chain of filtered-up information needs to be correctly interpreted: this informational burden would defeat philosopher kings and socialist planners. In contrast, the Bureausian system imposes fewer informational burdens and localises the consequences of miscalculations.

Economists tend to favor rules over discretion, in part because of these overwhelming informational demands. Central banks employ large numbers of highly qualified economists; but rules-based monetary targets were abandoned because they proved too difficult to hit.[xxxviii]

Judgements about monetary policy come with wide margins of error because of the complicated process by which initial policy actions impact on the economy. In contrast, the Bureausian system (with compulsory savings) requires policy makers to choose CITS rates to target $T^* = G^*$.[xxxix]

Consequences of policy failure

Imperfectly calculated monetary policy can cause severe macroeconomic dislocation; correcting mistakes can be long and costly. In contrast, failing to hit a balanced budget or ISA* in any particular year would not be so costly and can subsequently (and relatively painlessly) be corrected.

Even if fiscal policy failed to hit ISA* the resulting enterprise interest rate would still correspond a point on the GFCF schedule – a relationship with very precise, private sector, optimizing foundations. This type of fiscal inflation control has all the merits of decentralised wage bargaining. In contrast, the monetary control of inflation is a form of central planning; analogous to centralized (but unenforceable and asymmetric) wage fixing.[xl]

Each enterprise has (effectively) an 'interest rate committee' who calculate a price at which a loan can profitably be used. A miscalculating enterprise will bear the consequences; in contrast, when a central bank's interest rate committee miscalculates, the macroeconomy bears the consequences.[xli]

11.4   Exchange rate stability

Interest rates are a controversial instrument when used to influence or target the exchange rate or the current account balance: the Bureausian nexus provides an alternative tool for politicians who are concerned about such issues. In so far as the increase in the domestic sources of savings (ISA) replaces foreign sources, the interest payment component of the current account balance (net factor income from abroad) would 'improve'.

Interest payments would accrue to domestic residents (ISA deposit holders and taxpayers) rather than to overseas residents. If the CITS-ISA-NSB-GFCF nexus increased capital per worker and thus productivity in the export and import competing sectors, this too would tend to 'improve' the trade balance.

Internationally, interest rates often markedly diverge as individual countries tackle their own domestic problems: hot international money flows are often driven by these interest differentials. With the primary interest rate – the GFCF enterprise rate - determined by the interaction of the marginal productivity of GFCF and the supply of savings (NSB), the residual (central bank influenced) interest rate would become less important as a policy tool.

With central banks primarily concerned with bank regulation, interest rates would have less work to do. Exchange rate volatility (at least that component driven by hot money flows) should therefore be reduced. More structurally stable exchange rates would benefit the trade-able goods sector by reducing uncertainty.[xlii]

11.5   Debt elimination

The central malfunction of the business cycle is the discretion allocated to intermediaries to sever the arterial flow from savings into investment. As a result, national income bears the burden of macroeconomic adjustment.

A fall in consumer expenditure (an increase in savings) unmatched by a corresponding rise in investment expenditure will reduce national income. If savings are hoarded by intermediaries as vault cash or reserves, the money supply will fall. The multiplier will induce further reductions in income. Under hybrid systems, this leads to deficit-financed expansion packages and monetary-financed interest rate reductions.

Under the Bureausian system, rules-constrained lending removes this discretion from intermediaries. As a result, prices (the enterprise interest rate), not income, bears the burden of adjustment. Thus a fall in consumption (an increase in ISA) is automatically translated into an expansionary increase in GFCF.

Hybrid fiscal expansions leave legacies of public debt. The hybrid solution to debt is to cut government expenditure and increase income tax: both of which will tend to contract aggregate demand and may be self-defeating.

In contrast, the Bureausian system eliminates the adverse consequences of balanced budget legislation (or aspiration); eliminating debt also becomes relatively benign. Deficit-financed stimulus packages become redundant.

The hybrid debt legacy can be eliminated by increasing marginal CITS rates: offering the alternative of increasing ISA deposits or paying more tax.[xliii] Either way, each individual is making an optimizing decision to consume or to postpone consumption. Both actions contribute to tax revenue: consumption (via CITS), savings (via the stimulus provided by increasing GFCF). The Bureausian system provides an unusual correspondence between private and social optimality in the pursuit of debt elimination.[xliv]

12   Implications for central banks

The GFCF enterprise interest rate would be determined by fiscal, not monetary policy: the CITS-ISA-NSB-GFCF nexus removes the monetary punch bowl from central banks.[xlv] The enterprise interest rate - not the federal funds rate - would be the benchmark rate. Central banks could influence this enterprise interest rate only if they were allocated the role of fiscal fine tuning.[xlvi]

Monetary policy would have residual potency over post-tax interest-sensitive expenditures; influencing inter-bank monetary conditions may still assist the control of inflation. But the Bureausian flow disburdens central banks of the responsibility that has caused so much macroeconomic dislocation and controversy. Liberated from the burdens of monetary policy, central banks could, instead, focus primarily on the supervision and regulation of intermediaries.[xlvii]

13 Implications for the financial sector

Pre-tax savings could fund a variety of expenditures (human capital formation, medical expenses etc); GFCF is only one of many types of capital. Five simplifying assumptions facilitate the analysis of one pre-tax-savings-into-capital-flow.

(A1). The optimal pre-tax-savings-into-retirement-income flow was (actuarially) determined to be 10% of national income (ISA = ISA* = 0.1Y).

(A2). All of these pre-tax savings flow into GFCG (GFCF = 0.1Y).

(A3). These pre-tax savings are auctioned 100 times a year (and that there is only one length of loan, e.g. 15 years) at a cost of US$250,000 per auction (US$25 million per year). Between auctions, the BPS therefore collects 0.001Y.

(A4). Out of about 7,000 U.S. banks, 100 participate in NSB auctions. If each bank requires an average of 10 loan officers (to gather information and assess risk), plus 10 administrators and 10 auxiliary workers: this produces a total of 3,000 fundamental GFCF intermediaries costing on average US$100,000 per employee (US$300 million per annum).

(A5). There are four equal-sized intermediation flows in the U.S. economy (into GFCF, human capital, residential capital, plus all other categories).

The financial sector's share of U.S. aggregate income has risen from 2.5% of Gross Domestic Product in 1947 to almost 8% of GDP in 2006 (Phillipon 2008); in 2006, almost 3 million people were employed in "credit intermediation and related activities" out of a total U.S. employment figure of just over 150 million (U.S. National Employment Matrix). In addition, this sector regularly imposes significant macroeconomic externalities (plus bail-out costs).

The pre-tax savings-into-GFCF flow would require the employment of 3,000 intermediaries (plus US$25 million a year auction costs): financial sector employment would rise by 3,000 and fall (in this illustrative example) by anything up to 750,000. The share of national income consumed by the financial sector would increase by US$325 million and shrink (in this illustrative example) by approximately 2 per cent of national income (US$300 billion).

The financial sector consumes scarce capital;[xlviii] and directs talent into activities, some of which are socially dubious.[xlix] In contrast, the Bureausian auctioneer mechanism produces an un-interruptible flow of pre-tax savings into GFCF at a tiny fraction of the current cost: this may be as close to Walrasian zero as possible.[l]

This Bureausian flow would tend to shrink the post-tax financial sector by draining away deposits; other forces may exacerbate this tendency. [li] The details of financial innovation are, almost by definition, impossible to accurately predict.[lii] But technology has transformed financial intermediation: this facilitates competition from intermediaries with less expensive infrastructures.[liii]

Since new entrants to this intermediation market would not require a deposit base, nor elaborate retail operations, the cost of intermediation would be competed down (an efficiency gain). Shrinking the financial sector would also mitigate the "too big to fail" problem: "systemic" institutions (those whose failure would threaten financial system stability) would be relocated into the non-systemic category.

14 Implications for existing sales taxes

Earning income under CITS ceases to be a taxable event; this provides a rational tax avoider with an incentive to deposit all income into a purchasing-power protected ISA. Withdraws from ISA (to meet expenditures or to make post-tax asset purchases) would be subject to a (simultaneously paid) withholding tax. Thus point-of-sale consumption taxes (Sales, Value Added, Goods and Services etc) are, in effect, regressive replications of CITS.

There are at least six arguments for eliminating point-of sale taxes under CITS.

First, reversing the regressivity of point-of-sale taxes through transfer payments incurs administrative costs, plus the risk of inducing welfare dependency. Eliminating point-of-sale taxes eliminates the need for these compensatory transfer payments; eliminating taxes on income and payroll will also increase labor demand which will draw some welfare recipients back into the workforce.

Second, eliminating point-of-sale taxes eliminates one business cost – businesses cease to be unpaid tax collectors.

Third, residents of CITS countries cannot legally evade the consumption tax; residents of non-CITS countries can switch expenditures to countries without point-of-sale taxes. CITS countries should therefore acquire a cost advantage with respect to, for example, the export of tourism and educational services.[liv] (Some of that cost advantage may be eroded by the subsequent export-led strengthening of the domestic currency).

Fourth, cross-border internet transactions threaten to undermine the sales tax base (some countries have exemptions on imported items below a certain price). Some domestic companies incur the service costs for 'customers' who are shopping for commodities that they plan to buy electronically (free of sales tax). The customs agent costs of monitoring the flow of items above the exemption limit are not insignificant. Eliminating the sales tax allows domestic producers to compete on a level playing field and eliminates custom agent costs.

Fifth, the incentive to engage in the underground cash economy is reduced. The cash economy provides a joint sales tax evasion discount to both supplier and demander; the supplier has an additional motive (to hide income). In the absence of a point-of-sale tax, a rational (cash supplier) evader might offer a 5% discount – having calculated the associated risks. With a 10% sales tax, the cash supplier might offer a 15% discount with no increase in the calculated risk. For the rational (cash buyer) evader, the lack of documentation is part of the risk calculation: a 15% discount provides a greater incentive than a 5% discount.[lv]

Sixth, eliminating an x% sales tax will tend to lower the price level – and thus raise the real wage – by approximately x%. A country wishing to transition from a hybrid CITS/income tax system to a compulsory savings could do so painlessly by replacing an x% point-of-sale tax with an x% savings scheme.

15 Conclusion

Increased regulation may - or may not - remove some of the toxic elements associated with post-tax savings flows: it will change the products but not necessarily the incentives of intermediaries. In contrast, the Bureausian system offers benefits in terms of increasing capital per worker, productivity, real wages and thus future consumption-savings opportunities.

Under the Bureausian system, post-tax dollars may continue to create asset price bubbles; but decoupling pre-tax savings-into-capital from post-tax credit crunches can localize the destructive fallout on the macroeconomy. An uninterruptible flow from pre-tax-savings-into-capital would help insulate the economy from crises originating in the post-tax financial sector.

Even as an emergency anti-recession measure, this CITS-ISA-NSB-GFCF structure outperforms temporary tax-cut-consumption-subsidies. If the average ISA depositor saved 20¢ in tax for every dollar saved and the loss of tax revenue was 2 per cent of GDP, this would produce a capital fund of 10 per cent of GDP: a fivefold bang per buck.

CITS *can* increase household savings; ISA *can* be centrally collected and auctioned to financial intermediaries on a contractual dollar-for-dollar basis (NSB); GFCF *can* be funded via an uninterruptible channel in which animal spirits affect the interest rate but not the volume of capital; the macroeconomy *can* thus at least partly be insulated from credit crunches. Whether it *will* or not depends on our collective determination to reduce the macroeconomic externalities emanating from the financial sector.

BIBLIOGRAPHY

Blueprints for Basic Tax Reform. 1977. U.S. Treasury.
http://www.ustreas.gov/offices/tax-policy/library/blueprints/

Chadwick, E. 1842. Inquiry into the Sanitary Conditions of the Labouring Population of Great Britain.

http://www.victorianweb.org/history/chadwick2.html

Friedman, M. 1948. A Monetary and Fiscal Framework for Economic Stability. American Economic Review XXXVII, 3, June: 245-264.

Friedman, M. 1960. A Program for Monetary Stability. New York: Fordham University Press.

Garbade, K.D. 2004. The Institutionalization of Treasury Note and Bond Issue. Economic Policy Review Federal Reserve bank of New York, May 10.1: 29-45.

Kaldor, N. 1955. An Expenditure Tax. London: George Allen and Unwin.

Meltzer, A.H. 2009. A History of the Federal Reserve: Volume II. Chicago: University of Chicago Press.

Mill, J. S. 1884. Principles of Political Economy with some of their Applications to Social Philosophy. London: Parker, Son and Bourne.

Philippon, T. 2008. The Evolution of the US Financial Industry from 1860 to 2007: Theory and Evidence. New York University, NBER, CEPR November.

Pigou, A.C. 1924. The Economics of Welfare. London: Macmillan.

Ramsey, F. 1928. A Mathematical Theory of Taxation. Economic Journal 38.152, December: 543-559.

Schedvin, C.B. 1992. In Reserve: Central Banking in Australia, 1945-75. Allen and Unwin.

The Structure and Reform of Direct Taxation. 1978. London: Institute of Fiscal Studies. George Allen and Unwin.

Wicksell, K. 1936 [1898]. Interest and Prices. London: Macmillan (translated of 1898 edition by Richard F. Kahn).

NOTES

[i] This paper has been improved by comments provided by David Laidler and employees of the Australian Office of Financial Management plus seminar participants at the Dallas Federal Reserve, the Kansas City Federal Reserve, the Reserve Bank of Australia, the Australian Treasury, the U.S. Treasury's Bureau of Public Debt, the University of Western Sydney, University of Western Australia, Monash University, Chico State University, the University of Missouri Kansas City, Miami University, Bowdoin College, the University of Western Ontario and the 2009 Finance, Economics, Marketing and Accounting Centre (FEMAC) conference.

[ii] There may also be some need for insurance contracts.

[iii] They apparently do a good job: according to their web site, in January 2009, the AOFM was awarded the Sovereign Risk Manager of the Year award by the London-based *Risk* magazine.

[iv] "You haven't heard of the Bureau of the Public Debt before?" http://www.publicdebt.treas.gov/.

[v] For example, in 1992, Australia introduced a new savings-into-capital flow (a compulsory superannuation savings scheme, 3% of ordinary time earnings), extended it in 2002 (9% of ordinary time earnings); there are plans to extend it further (to 12% of ordinary time earnings).

[vi] Emphasizing the *domestic* GFCF class does not, of course, reduce the importance of international capital flows (which can still be accessed by intermediaries via channels that already exist).

[vii] Fiscal rationality should include the cost-benefit rankings of proposed government expenditures and should be accompanied by fiscal transparency.

[viii] Household savings (S) have two direct components, pre-tax (ISA) and post tax; plus a third indirect component, social security taxation.

[ix] For example, A.C. Pigou (1924, 25) noted the "far-reaching economic disharmony" caused by "the wholly irrational preference" by which future consumption is discounted: "our telescopic faculty is defective".

[x] Given a vector of assumptions (including real interest rates, the life expectancy and income profile of a community), a rate of household savings can be calculated to produce retirement income (as a proportion of labor income). A zero real interest rate (a purchasing power guarantee) simplifies this calculation.

[xi] These savings are effectively bundled together to purchase new financial assets – government bonds.

[xii] The fees associated with one type of savings-into-capital flow – Initial Public Offerings (IPOs) – can be as high as 8%. IPOs are almost invariably underpriced by underwriters – the price of an IPO has been known to rise by 1000% in the first day of trading. Thus borrowers sometimes leaves hundreds of millions of dollars "on the table" to be consumed by intermediaries and those who are invited to participate in IPOs.

[xiii] With or without individual choice with respect to the specific assets purchased.

[xiv] Waring oversaw the construction of New York's Central Park and was later appointed New York Commissioner of Streets.

[xv] http://www.victorianweb.org/history/chadwick2.html

[xvi] In 1834, a painter (John Martin) drew plans for a sewerage system for London.

[xvii] Singaporean CPF account balances earn government-guaranteed interest rates (currently 2.5%).

[xviii] However, one variant (Premium Bonds) are held by almost 40% of the population of the U.K.
http://www.nsandi.com/press-room/premiumbonds50/history_pb

[xix] The receipt of such an interest payment might violate the Koran and thus cause unnecessary problems.

[xx] U.K. residents are also able to invest in tax-privileged Individual Savings Accounts.

[xxi] Historian, U.S. Postal system.
http://www.usps.com/postalhistory/_pdf/PostalSavingsSystem.pdf

[xxii] The compulsory savings proportion is lower for government pensionable employees and for those over 50. India, Malaysia and Hong Kong also have similar Provident Funds.

[xxiii] From December 1979, Australian Treasury Notes and from July 1982, Australian Treasury Bonds, have been offered by tender (Schedvin 1992, 548).

[xxiv] The FDIC-style insurance premium would presumably be 0.i% of each loan.

[xxv] One quasi-exception is the 1977 U.S. Community Reinvestment Act.

[xxvi] Certain types of 'capital' could be specifically non-fundable: for example bubble-prone Central Business District office block purchase, mergers and acquisitions etc.

[xxvii] The private wealth of some intermediaries contrasts markedly with the modest incomes of central bankers and Treasury officials.

xxviii A publicity-conscious-damage-minimizing White House would hesitate to interfere with the market-based competition for funds from log cabin banks.

xxix These new entrants would, of course, first have to obtain registration and approval from the relevant supervisory authority.

xxx As happened in September 2008.

xxxi For example, Singapore and Australia.

xxxii Businesses may still receive funding from post-tax dollars (by issuing stock and bonds and taking on other loans etc) but the flow of savings-into-GFCF via the CITS-ISA-NSB nexus would be an uninterruptible and stable function of income - regardless of the market for these post-tax funds.

xxxiii Having two targets and one instrument may require a lexicographic ordering of targets. Alternatively, if marginal CITS rates produced $T = G^*$ but $ISA > ISA^*$ a one-off end of year tax-free consumption allocation could raise C towards C^*.

xxxiv In Keynesian multiplier analysis, savings are a leakage from the domestic multiplier process; with fiscal rationality, inflationary consumption is replaced by the injection of savings and capital formation.

xxxv "There is a certain rate of interest on loans which is neutral in respect to commodity prices, and tends neither to raise nor to lower them" (Wicksell 1936 [1898], 102).

xxxvi The abolition of income tax will increase labor demand. This savings-into-capital mechanism could also address the issue of a mismatch between wage levels and employment outcomes: increasing capital per worker should increase the marginal product of labor and thus labor demand. This is a benevolent policy alternative to cutting wages or a deficit-financed boost to aggregate demand through government spending on activities that could not otherwise be justified.

xxxvii Larger and more established firms with access to equity financing often hold retained earnings as a buffer and can reduce dividend payments if necessary.

xxxviii It is unlikely that even simple interest-rate-rules will be embraced by policy makers in the highly charged environment in which their policy tool can have significant employment consequences (for elected politicians and for those who elect them).

xxxix Without compulsory savings, CITS must target both $T = G^*$ and $ISA = ISA^*$.

xl The cost of retail lending may or may not fully reflect cuts in official rates; credit may or may not expand in response to a central bank string-push.

[xli] Policy-makers could not allocate too little pre-tax savings to GFCF (there are other sources of funding, some non-domestic). But could they allocate too much? What would be the consequences of the GFCF enterprise interest rate being "too low" in any particular year? Presumably, profit maximizing firms would be undertaking more GFCF than they otherwise would; if this was identified as excessive, attempts would presumably be made to prevent a repeat in subsequent years. Higher subsequent GFCF enterprise interest rates should not impact on previous rates – which are nominally fixed for the duration of the loan.

[xlii] This would also provide a more secure foundation for those countries seeking to create monetary unions.

[xliii] CITS is consistent with a tax-free threshold to minimize the need to compensate tax-paying consumers with transfer payments.

[xliv] Once net government debt is zero, the withholding tax could target a small annual surplus (to cover unforeseen variability), with the excess returned deposited into individual ISA at the beginning of the following tax year.

[xlv] Federal Reserve chair William McChesney Martin suggested that a central bank's job was "to take away the punch bowl just as the party gets going" (cited by Meltzer 2009).

[xlvi] The discount rate would always have to above the enterprise rate.

[xlvii] In particular, central banks would be responsible for maintaining competitive pressures and assessing the merits of potential entrants. The criteria for non-deposit intermediary applicants would presumably be similar to the standards applied to deposit-based incumbents. But the Bureausian system also allows for the possibility of avoiding the costs of intermediation: an existing business could apply for an auction license so as to source GFCF funds directly. In one sense, the default risk would be smaller (intermediaries have capital adequacy ratios as a fraction of outstanding loans; for an individual business, a single loan is usually a fraction of existing assets). But intermediation creates a healthy gap between a government agency and the allocation of capital; allowing businesses to bid for NSB funds directly raises fears (real or imagined) about the political allocation of capital.

[xlviii] For example, skilled labor, shop front real estate plus resources held as insurance against risk-weighted assets.

[xlix] For example, financially engineering ways around regulations.

[l] The pre-tax ISA purchasing-power-guarantee also provides a benchmark against which to assess post-tax investment strategies. Currently, a large amount of entrepreneurial energy is channeled into "beating" the second-hand share market. Under the Bureausian system, market beaters would play with post-tax dollars: someone facing a 50% marginal CITS rate would have to outperform inflation by over 7% every year for a decade (net of fees and capital gains taxes) just to catch up with the pre-tax inflation-protected dollar.

[li] The old newspaper model has been almost destroyed by new channels of electronic commerce; micro-financing is advancing from third world countries into the U.S. and may radically change (and squeeze) financial intermediation. In less technologically advanced times, financial intermediaries could argue that their services justified their large share of national income; until recently, making deposits and obtaining cash usually required a visit to a bank (this, therefore, required an expensive high street presence). Also, central banks couriered checks around the country to large processing centers.

[lii] Electronic labor service barter, for example, can sidestep taxation in ways that are difficult and expensive to monitor (the search costs of the double coincidence of want are a virtual zero; transaction costs can become transaction benefits for those seeking to build virtual-community-based social capital).

[liii] Cash is now available via machines and supermarkets; banks and customers shift funds and checks electronically.

[liv] Some countries allow tourist to reclaim (receipted) sales taxes on some items.

[lv] On the other hand, in so far as the underground cash economy cannot avoid such points-of-sale the ability to evade is impaired. Whether point-of-sale taxes increase or reduce tax evasion is an (imprecise) empirical question.