

**Elements of a Post-Keynesian Public Finance:
Contributing Concepts from Modern Monetary Theory
Concept for a Book**

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Much of the conventional economic wisdom prevailing in financial circles, largely subscribed to as a basis for governmental policy, and widely accepted by the media and the public, is based on incomplete analysis, contrafactual assumptions, and false analogy.¹

- William Vickrey (1914 – 1996), American economist, Nobel Laureate in Economics, 1996

The development of the economy ... has led to fundamental changes that have not been matched by the evolution of our theories.²

- Edward J. Nell and Matthew Forstater, American economists

The whole mainstream theory of the state is false because it is completely inconsistent with the essentiality of money ... It is now the time to substitute a modern monetary view of the state for the questionable 'tax-funded' state.³

- Alain Parguez, French economist

Final freedom from the domestic money market exists for every sovereign national state where there exists an institution which functions in the manner of a modern central bank, and whose currency is not convertible into gold or some other commodity.⁴

- Beardsley Ruml (1894 – 1960), American economist and director (i.e., president) of the New York Federal Reserve Bank (1937–1947)

Introduction

Why this Discussion is Needed Now. Interest in Modern Monetary Theory (MMT) has been heightened recently, owing to the programs being advanced by certain prominent Democrats, especially presidential candidate Senator Bernie Sanders (I, Vermont), and Rep. Alexandria

¹ William Vickrey, "Fifteen Fatal Fallacies of Financial Fundamentalism: A Disquisition on Demand Side Economics," Unpublished typescript, October 5, 1996. available online at <http://www.columbia.edu/dlc/wp/econ/vickrey.html>. Accessed April 9, 2019.

² Edward J. Nell and Matthew Forstater, *Reinventing Functional Finance: Transformational Growth And Full Employment*. Cheltenham, UK and Northampton, MA: Edward Elgar, 2003; p. 139.

³ Alain Parguez, "A Monetary Theory of Public Finance: The New Fiscal Orthodoxy: From Plummeting Deficits to Planned Fiscal Surpluses." *International Journal of Political Economy*, Vol. 32, No. 3, Heterodox Perspectives on Money and the State (Fall, 2002); p. 96.

⁴ Beardsley Ruml, "Taxes for Revenue are Obsolete," *American Affairs*, Jan. 1946, VIII:1, p. 35.

Ocasio-Cortez (D, New York), to justify expenditures for universal health care, a minimum income guarantee, and a “Green New Deal.” These politicians have gone on the record as stating that, if anything is technically feasible, then money cannot be an object; the resulting deficits and debt will not matter. The set of theories that have been advanced as justification fall under the general rubric of “Modern Monetary Theory.”

Modern Monetary Theory. Financier and economist Warren Mosler, one of the founders of the intellectual movement known collectively as Modern Monetary Theory (MMT) has lamented that:

Obsolete economic models have hindered our ability to properly address real issues ... Discussion of income, inflation, and unemployment have been overshadowed by the national debt and deficit. The range of possible policy actions has been needlessly restricted (1996 & 2012: 73).

MMT provides a framework to understand how the monetary system came to take center stage at the operational core of the modern economically-sovereign state, one that is able to issue its own convertible currency in a flexible exchange rate system. MMT thus implicitly relegates orthodox economic models to circumstances where nations unnecessarily impose constraints on themselves, or which are imposed externally (such as the case where external debt is denominated in a foreign currency). Self-imposed constraints, such as artificial debt ceilings, prohibition of government bond sales directly to the central bank, or balanced budget rules constitute unwarranted constraints on the fiscal flexibility of governments. They narrow the range of policy options, reduce the efficiency of the monetary system, and impart a deflationary bias to the economy.

Big Government. It is crucial at the outset to provide a *fiscal definition* of the state, or the government. In this paper, the “government” refers to the consolidated central bank plus the state treasury, or *fisc*. In other words, it is what the late American economist Hyman Minsky called “Big Government:” the state’s budget plus its monetary agent, operating in concert with one another. This is a central tenet of much Post Keynesian theory, and especially of MMT: the central bank has no effective independence in the long run (Minsky, 1994; Wray, 2007; Vasconcelos, 2014). The economic role of “Big Government” has been summarized by Minsky as follows:

A government that is big enough to contain the depression proneness of capitalism needs a tax system which raises sufficient revenues so that over the run of good and bad years the ratio of government debt to gross domestic product remains in a comfort zone of from 20 to 50 percent of gross domestic product. (Minsky, 1994, 1).

Consistent with its economic program and responsibilities, government, in order to fulfill its role in an effective manner, simply must be sizable enough to influence market processes. That is, it has to be “big.”¹

The Limits of Theory. The proposition that all economic processes remain fixed and unchanging as the economy itself grows cannot be maintained; such a position is indefensible. Historical time is accompanied with a complex process of change that is acting on a complex world; it is what economist Edward Nell has called *transformational growth*. This is a process of change that results from market processes, but which fundamentally alters the market processes which have produced the change. Changes occur in the taken-for-granted “givens” of how and why fundamental economic institutions operate as they do.

¹ Further, Minsky observes that, in the fulfillment of its economic role, large size confers considerable advantages: “The experience of the twentieth century provides material supporting the proposition that the big government interventionist capitalism that was developed as a reaction to the great depression was a more successful economic system than the largely laissez-faire capitalism that ruled for the first third of the century” (Minsky, 1994: 1).

Simply put, “the market works differently in different market periods” (Nell, 1996: 16). For instance, entirely different *operational realities* characterize the world the gold standard, gold exchange standard, and the fiat currency world of credit-money. These new realities are vital for understanding the real opportunities and constraints that operate on the theory and practice of public finance as we prepare to enter the third decade of the twenty-first century. Consequently, Minsky has cautioned that,

Because big government needs to be big in order to contain thrusts to deep depressions, government and its institutions can do great harm, especially if their actions are based upon ‘Pollyana’ views of the wonders of markets and a ‘true faith’ that markets always know best. Policy makers need to adopt a skeptical attitude towards claims that universal truths about economic policy (relevant for all economies at all times) have been derived from economic science (Minsky, 1995: 11).

Fundamental Features of Post Keynesian Economics

The fundamental features of Post Keynesian economics are surprisingly quite foreign to mainstream neoclassical theory. Post Keynesian thought emphasizes history and cumulative causation along a path of dynamic, often path-dependent change, as opposed to equilibrium “solutions” to problems. The actual operation of administrative and financial institutions in historical time (as opposed to logical time) is privileged. Post Keynesian thought recognizes explicitly what is, perhaps, the most basic reality of human existence: the pervasive presence of inescapable irreducible uncertainty (in a Knightian sense). Further, Post Keynesian thought asserts that money is not neutral in its effects, but has real economic effects. In sum, Post

Keynesian economics and finance embody the following six features:

1. A focus on *the real world* in which human beings operate; not merely “the world in the model;”
2. A concern with *historical time*, involving a dynamic evolution of economic variables, as opposed to Walrasian equilibrium, where everything is settled at once;
3. A recognition of the presence of *pervasive, irreducible uncertainty*;
4. Acknowledgement of the *non-neutrality of money*; money has effects on the real economy;
5. An emphasis on *institutions* and how they operate to produce outcomes; and,
6. An assertion of *governmental activism*: the unavoidable policy making role of the state; governments always make policy choices.

Post Keynesians maintain that, on the basis of actual lived experience, as well as conceptual rigor, it can be established that increases in demand do not necessarily place upwards pressure on prices; that increases in the minimum wage will not necessarily increase unemployment; that real wage hikes are not associated with reduced corporate profitability; that a fall in savings does not lead to reduced investment or growth in the long run; that more flexible wages and prices do not guarantee economic equilibrium at full employment; that budget deficits do not lead to increased inflation or interest rate rises; and that the national debt is not a burden on future generations, but a source of wealth to the private sector. The

above fundamentals are well-established in the literature; this paper takes them as its point of departure.⁵

In the realm of public finance, the features of Post Keynesian economics find expression as follows:

1. A focus on the *real world operation of fiscal and monetary institutions*, especially the clearing of accounts through the banking system and the elaborate system of reserve accounting that knits together the Federal Reserve, the U.S. banking system, and the U.S. Treasury;
2. A concern with the *proper historical time sequence of fiscal and monetary events*, so as to understand the actual direction of causation between key economic variables;
3. An appreciation of how the presence of *pervasive uncertainty lends importance to the expectations and liquidity-seeking behavior* of key economic actors; and,
4. An acknowledgment of how *government- and bank-created money commands real resources*, mobilizing them for the achievement of key governmental policy objectives.

State and Credit Theories of Money

Origins of Money. Neoclassical theory finds the origins of money in the optimizing behavior of rational individuals. Hence, there is no role for the state to play in the introduction of money.

Mainstream theory views money merely as a “lubricant,” permitting efficient exchange by reducing transactions costs, precisely, by overcoming the problem of the “double coincidence

⁵ For the features of Post Keynesian theory that are presented in works by some of the most prolific Post Keynesians, see Eichner and Kregel (1975), Arestis, (1996), Palley (1996), Pasinetti (2005), Davidson (2011), Lavoie (2009), and Mitchell, Wray, and Watts (2019). Be advised that this list barely scratches the surface.

of wants” (Menger, 1892: 244-245). Money therefore appears as a “veil,” behind which rests an essentially barter economy. Mainstream economists thus largely see money as useful in increasing efficiency of transactions, but leaving relative prices and quantities unchanged. The state, if it seeks to play a role, appears as a “late arrival” on the scene, hijacking the monetary system, and using it for its own ends. In the process, the state is regarded as unjustly and undeservingly appropriating an (unearned) share of national income to itself. To the extent that one also believes government activity to be inherently inefficient, at least in comparison to market activity, then the offense appears to be doubly egregious.

The mainstream view is at odds with the established historical record, however (Goetzmann, 2017; Graeber, 2011; Dowd, 2000). The archaeological and anthropological evidence strongly establishes the role of the state and state institutions in the issuance of money; in prehistoric times, it was the church-state. The prevailing myth that money developed as a private matter, only later to be coopted by the government, is without merit. According to Graeber (2011: 40):

In fact, our standard account of monetary history is precisely backwards. We did not begin with barter, discover money, and eventually develop credit systems. It happened precisely the other way around. What we call virtual money came first. Coins came much later, and their use spread only unevenly, never completely replacing credit systems. Barter, in turn, appears to be largely a kind of accidental by-product of the usage of coinage; historically, it has mainly been what people who are used to cash transactions do when for one reason or another, they have no access to currency.

But mainstream theory sees little to be gained from the historical study of money’s development. The actual study of *monetary history* is regarded as a nuisance: for neoclassicists, money developed as a cost-reducing alternative to barter; nothing more. This story appears to

be plausible, but it actually is pure conjecture. It is, in Keith Dowd's (2000: 139) words, a "conjectural history."⁶

The State Theory of Money. The strand of post Keynesian thought that is embraced here begins with the *state theory of money*. Originally introduced by Georg F. Knapp (1924), the state theory of money is also known by the name "chartalism," after the Latin term for "token:" *charta*. The basic notion is that modern fiat money is little more than a state-issued "token," or IOU: evidence of government indebtedness to the recipient, with no convertibility to any commodity (such as gold⁷). Knapp has the state deciding upon the unit of account, and the specific items that will serve as money (termed the "money things"). These are what the state designates to serve in the final settlement of accounts; all transactions are to be denominated in this unit. The point is that the choice of the unit is decided upon by the state, rather than emerging spontaneously from market exchange. The state determines the physical attributes of money, and the state can change it at will.⁸

⁶ Dowd further writes (2000: 139) that, "A conjectural history provides a benchmark to assess the world we live in, but it is important to appreciate that it is *not* meant to provide an accurate description of how the world actually evolved. The conjectural history is a useful myth, and it is no criticism of a conjectural history to say that the world failed to evolve in the way it postulates." (emphasis in original.)

⁷ Under the previous *gold standard*, governments were more limited in their ability to issue currency by the availability of their gold stocks. But gold stocks also constrained the ability of the private sector to grow and expand (Eichengreen, 1996). Hence, the gold standard was bound to be abandoned in the face of the pressure of ever-growing economies. In 1971, President Richard Nixon closed the gold window at the Fed, forever taking the U.S. off gold convertibility. The U.S. dollar has floated against nations' currencies since that time, and international payments and settlement of debts are no longer made in gold.

⁸ In this connection, Knapp (1924, 13) writes that, "if the state declares silver to be the material for payment instead of copper, the relative amount of debts remains unaltered." This also provides an important clue as to the true nature of any monetary unit: it is evidence of a debt.

The state has the right and the power to choose that which will serve to settle debts in the designated unit of account. John Maynard Keynes (1930: 4) put matters in an oft-cited passage, as follows:

The state ... comes in first of all as the authority of law which enforces the payment if the thing which corresponds to the name or description in the contract. But it comes in doubly when, in addition, it claims the right to determine and declare what thing corresponds to the name, and to vary its declaration from time-to-time when, that is to say, it claims the right to re-edit the dictionary. This right is claimed by all modern States and has been so-claimed for some four thousand years at least.

The critical point is the dominant role played by the state:” “Within a state the validity of the kinds of money is not a trade phenomenon but rests on authority” (Knapp, 1924: 217). That is, the issuance of currency rests on state power.⁹

The late American economist Abba Lerner also wrote of the origins of money as residing with the state: “The modern state can make anything it chooses generally acceptable as money and thus establish its value quite apart from any connection, even of the most formal kind, with gold or with backing of any kind” (1947: 313). Contrary to conventional wisdom, however, it is not “legal tender” laws which confer status and acceptability on a given currency. As Lerner continues to explain, “It is true that a simple declaration that such and such is money will not do, even if backed by the most convincing constitutional evidence of the state’s absolute sovereignty.” The public remain the ultimate arbiters of the currency’s acceptability. But the state can provide a critical incentive for citizens to accumulate its money:

⁹ The state’s powers to issue money have long been established. According to Hudson (2004: 121): “The power to create money and expand the credit supply historically has tended to be in the hands of public bodies. Ever since the Bronze Age inception, money’s power has been established by the public sector’s willingness to accept it in payment for public fees and taxes.”

“if the state is willing to accept the proposed money in payment of taxes and other obligations the trick is done” (Ibid.) Here we have the *tax basis of money*: the state confers value on its preferred “money thing” by requiring that all taxes and other obligations that citizens owe to the state be satisfied only with the state’s own money.

Credit Theory of Money. This obviously begs the question of bank-created money. Insofar as most money in use in the modern industrial economy has been created by banks as they make loans, such *bank money* is, by nature, *credit money*. Credit money takes the form of an IOU of the issuing bank, offset on its balance sheet by a loan (the IOU of the borrower) held by the bank as an asset (Wray, 2007: 2). In making and taking the loan, the lending bank and the borrower have essentially exchanged their IOUs, with the more marketable IOU of the bank commanding a premium, to be paid by the borrower in the form of interest. But private sector bank-created money is not accepted by the state in payment of taxes. In logical order of sequence, before a private firm or individual can pay their taxes, the government (Treasury of central bank) must first have spent (or lent) the money into existence. To paraphrase American financier and economist Warren Mosler, “you cannot have a bank reserve drain before there has been a reserve addition” (2011: 20).¹⁰

This means that the state must issue money prior to its being collected back by the state itself in the form of taxes. Thus, spending logically precedes taxation. Only money that has been previously issued by the state, or bank-created money that has been guaranteed by the state to

¹⁰ As to the mechanics of reserve accounting, the process follows this general sequence: When a private individual, firm, or financial institution pays their taxes via check or EFT, their bank deposit decreases by the amount of the tax remittance, but the true settlement of the tax liability to the government occurs via a reduction in the bank’s reserve account, and an increase in the Treasury’s account balance. (The bank’s reserves simply disappear from the central bank, into “thin air.”)

be convertible into the state's own money (the more common instance in the modern era) can be withdrawn from the economy by the state in the form of taxes. Essentially, the state appropriates resources for public purposes by placing members of the public in debt, precisely, by imposing taxes on them. The imposition of taxes generates incentives to work – quite the opposite conclusion of neoclassical theory. It creates work incentives insofar as taxes deprive the private sector of some amount of resources, thereby creating incentives to work so as to accumulate the state's money in order to pay taxes with it. To the extent that unemployment becomes persistently high, this is evidence that the government's fiscal deficit is too small relative to what employment levels might be if sufficient effective demand were present. In order to move the economy in the direction of full(er) employment, then, some combination of tax cuts and/or spending increases are logically called for.

All Money is Debt. Upon issuance of the state's unit of account, private sector actors can issue their own money denominated in the state's unit of account. This possibility arises from the basic fact that two private individuals can go into debt with one another. It was the insight of A. Mitchell Innes (1913, 1914) that private money can be created by transacting individuals, and denominated in the state's own money, revealing that money is founded upon a creditor-debtor relationship. "A first class credit is the most valuable kind of property. Having no corporeal existence, it has no weight and takes no room. It can easily be transferred, often without any formality whatever" (Innes, 1913: 10). Indeed, "credit and credit alone is money" (ibid., p. 9). Hence, argues Innes, all money is debt.¹¹ He employs the terms "debt" and "credit"

¹¹ Regarding credit, Innes writes (1913: 9) that, "It is here necessary to explain the primitive and the only true commercial or economic meaning of the word 'credit.' It is simply the correlative of debt. What A owes to B is A's debt to B and B's credit on A. [That is, on A's balance sheet.] A is B's debtor and B is A's creditor. The words 'debit'

interchangeably: “Whether ... the word credit or debt is used, the thing spoken of is precisely the same in both cases, the one or the other word being used according as the situation is being looked at from the point of view of the creditor or of the debtor” (Ibid., p. 10).

Innes thus sees state money as a debt. In purely formal and legal terms, dollars bills are evidence of the public debt of the United States to the holders of the bills¹². Further, the U.S. Government creates contingent liabilities when it guarantees convertibility of privately-created bank money (i.e., bank debts) into its own currency. It is all debt. “Money, then, is credit and nothing but credit.” Further, Innes surmises, “A’s money is B’s debt to him, and when B pays his debt, A’s money disappears. This is the whole theory of money” (Innes, 1913: 16). Here, precisely, is where the tax basis of money enters: whenever a taxpayer settles her tax liability to the government, she does so by returning to the state its own debt.¹³ This is, in fact, how any debt may be discharged, according to both custom and law. Further, the historical evidence also lends strong support to the notion that money is always credit and that the state plays the dominant role in the introduction and the maintenance of the system of monetary circulation.

It should be noted that there is a strong complementarity between the state theory of money and the theory of money as credit. For, once the state has selected its preferred unit of account, then private transactions are free to take place largely via debits and credits in private

and ‘credit’ express a legal relationship between two parties, and they express the same legal relationship seen from two opposite sides. A will speak of this relationship as a debt, while B will speak of it as a credit.”

¹² In this connection, Innes (1914: 6) writes that, “Every time a coin or certificate is issued ... [then a] credit on the public treasury is opened, a public debt incurred.”

¹³ This is in accordance with the accepted practice whereby the debtor can discharge a debt by handing to the creditor some sum of the creditor’s own debt to others, that is, “the right of the holder of the credit (the creditor) to hand back to the issuer of the debt (the debtor) the latter’s acknowledgement or obligation, when the former becomes debtor and the latter creditor” (Innes, 1914: 6).

balance sheets. Indeed, it becomes possible now to envision the entire economy as an intricate web of debit and credit relationships, where one party's debt (credit) is another's asset (debit). Together, the state and credit views of money permit a more revealing look at the nature, structure and operations of the monetary system. The underlying reality is that, money is always credit, and it is always transferable; it is never "neutral" in its effects.

Non-Neutrality of Money. Much of Post Keynesian economics concerns money and the economic effects that money has on the real economy. The desire to "save" (that is, to hoard money), especially in times of crisis, will produce economic difficulties (Davidson, 1978, 1994, 2011). Further, it is a common sense observation that money creation and expenditure commands (and calls forth into employment) both labor and material resources. Consequently, money is not, and cannot be, "neutral" in its effects. Contrary to neoclassical economists, Post Keynesians assert that the availability and access to credit-money is essential to the production process (Davidson, 1972; Lavoie, 1992; Cottrell, 1994; Wray, 2001, Graziani, 2003). The essential character of money is manifest in ways that go well beyond the mere facilitation of exchange (i.e., economizing on transactions costs), as in Walrasian general equilibrium models. Rather than serve as a mere medium of exchange, money is demanded in its own right.¹⁴

¹⁴ In a world of perfect certainty as to all outcomes, for all time, economic actors would be irrational to hold money, because they would be giving up the interest they would earn on alternative investments. However, in the face of an uncertain future, people may wish to hold money, rather than other assets, and postpone the purchase of goods and services. Money maintains its relative value over time, but its production (i.e., printing more money) does not contribute to increased output or employment to any significant extent. The reason is that money has a zero (or negligibly small) elasticity of production (Davidson, 1994). Further, money has a zero or negligible elasticity of substitution for liquidity. This means that demand for money, unlike demand for other goods, cannot contribute to either output, or employment. Consequently, saving money dampens economic growth; the more saved, the lower the growth rate.

Money Sponsorship as a Core Function of Modern Public Finance

The system of the public finances lies at the foundation of the modern system of money and banking; one implies the other and the two are inseparable. French economist Alain Parguez (2002: 87) has noted that, “no monetary system can exist if there is no monetization of the state, which implies that the state gets resources out of money creation instead of exacting a real tribute [i.e., taxes].” It should be apparent that a properly monetized private economy cannot exist absent the state, for as the source of commercial law, the state both introduces a currency, and bestows upon the private banking system its creditworthiness, not primarily by and through “legal tender” laws, but by guaranteeing conversion of bank-created credit-money into the government’s own money on a one-for-one basis.¹⁵

Conventional textbooks treat the money supply as exogenous to government finance. In fact, money and banking are central to the mechanics of government spending and taxation. It is a historical fact that government spends by creating money; further, taxation reduces the money supply. Government bonds are an instrument of monetary management, maintaining interest rates at policy-relevant levels. An important implication of this state of affairs is that it is extremely difficult to separate monetary and fiscal policy mechanisms. In fact, they are intertwined. The ways in which we generally speak about the economy do not connect with how the system actually works in practice (Nell, 1996). Governments have consolidated their

¹⁵ Endorsement by the state ensures the continued existence and value-in-use of money, but with one vitally important *caveat*: the bank money created and lent to firms and individuals must be value-enhancing; that is, capable of creating real wealth. This highlights the critical role of banks in screening loan applications for their relative profitability.

power and finance, not so much as to fund their operations, as to issue money and to manage its value. Whether one believes this to be true literally is of little consequence; this has been the practical effect.

The Meaning of “Monetary Sovereignty”

According to Randall Wray, a leading heterodox economist, “One cannot pay one’s debts using one’s own IOUs,” no sooner than one can employ their own debt to satisfy their other debts. That leads to an infinite logical regress. IOUs are evidence of one’s debt; someone else’s debt can only be used to discharge one’s own liabilities. Wray continues, however: “But the sovereign state is special” (2012: 278). Sovereign currency-issuing governments operate a public monopoly in their own currency. Consequently, monetarily-sovereign governments are never constrained by a lack of funds. They may be constrained by a lack of productive projects in which to invest, however. And this would turn on the potential output of the economy at any given point in time, given the state of technological development, labor skills and productivity, etc. Sovereign currency governments are therefore always able to spend money, in whatever amount that may be necessary to meet their policy objectives, in their own currency. As long as the prices for purchase of goods and services are denominated in their own currency, monetarily-sovereign governments are able to afford to purchase anything. Further, possession of a national currency that is in wide use around the globe also confers benefits on the government that issues it. In the case of an open economy, such as the U.S., ready acceptability of the currency by other countries permits the government to command resources beyond any domestic sources – a considerable advantage.

Advantages of a Sovereign Currency. These are considerable advantage to a nation possessing a sovereign currency. As a direct consequence of its monopoly on currency issuance, a monetarily-sovereign government – even one in fiscal distress – can never be forced to repudiate its domestic-currency-denominated debt. And this will be true even if and when inflation rises. This is so because sovereign, money-issuing governments need not endure absolute credit constraints in the debt markets. On the other hand, individuals, firms, and state and municipal governments must all have access to funds first, in order to make payments. Such units are limited as to the amounts of credit that the market is willing to extend to them. They must all generate revenues and other resources (e.g., via borrowing) in order to make expenditures. These economic units must, in the long run, adhere to the principles of “sound finance,” in ways that the federal government – as a monetarily-sovereign state – need not. Federal spending is in no way constrained by federal revenues, as the fiscal history of the United States Government vividly demonstrates.

The U.S. federal government has the unique privilege of spending a currency that is its own to create or destroy. States and localities, on the other hand, spend a currency that is not under their direct control. U.S. state and local governments are users of the dollar, and not issuers of it, rendering them in this respect similar to households and firms. Neither does any U.S. state or municipality possess its own central bank. Therefore, subnational governments are much more subject to the discipline of the capital markets, which demand fairly strict adherence to norms of budgetary balance. The federal government is thus able to spend a virtually unlimited amount, adding reserves to the banking system, then only after-the-fact borrowing to drain bank reserves, if these appear to be large in relation to the objectives of the government’s monetary policy. The U.S. federal government is able to issue money in any quantity that may be necessary

in order to meet its expenditure needs. The federal government sponsors and controls its own bank – the Federal Reserve – and issues the common currency which is the undoubted definitive means of payment and, more importantly, ultimate means of the settlement of debts.

Institutional Positioning of the Federal Reserve. The Fed is the fiscal agent of the U.S. Treasury. Despite its formal policy independence from the U.S. Government, in *operational* terms, the very existence of the Federal Reserve enables the U.S. Government to issue money when needed. Since federal debt is denominated in the U.S. Government's own currency, the U.S. is able to avoid any possibility of default. The U.S. Government can preempt capital markets, issuing as much currency as it needs, owing to its vast financial powers: in particular, its sovereign power to tax, to issue money, and the status of the U.S. dollar as the world's only international reserve currency. It is thus no mystery that U.S. Treasury securities are regarded as the safest financial instruments on the planet. U.S. Government spending therefore is not constrained by the amount of bond financing that the markets are willing to absorb. Federal spending is, rather, only constrained by the willingness of the private sector to exchange goods and services for funds drawn on U.S. Treasury accounts. Commercial banks have never been known to refuse to deposit a valid check drawn on a U.S. Treasury account.

Monetary Endogeneity. Not only is federal spending unconstrained by the availability of financing, such is also the case with respect to private investment spending. Provided that firms' projects are judged by bank lenders to be value-enhancing (and therefore profitable), investment funds are made available to firms *ex nihilo*. That is, banks create deposits in the name of their loan customers as they make loans to those same customers. As such, the money supply is seen to expand in response to customer demand. This contributes mightily to the Post

Keynesian principle of effective demand. (See below.) What it means from the standpoint of government finance is that the central bank does not “control” the money supply, nor should it!

Conventional theory is grounded in the notion that banks must first acquire excess reserves (essentially, an abundance of bank deposits) prior to making loans; otherwise, they would be constrained by their reserve positions, and thus unable to make loans. In actual practice, however, banks are able to make loans irrespective of their advance reserve position. In their thirst for profits, banks will never turn away creditworthy customers; they make loans first, then seek the necessary reserves from the Fed. Both the bank loan and the reserve add that takes place at the Fed originate in the same way – literally, out of thin air. This implies that the central bank does not “control” the money supply; rather, the quantity of reserves is driven by the quantity of loans granted. The process does not work in the way that mainstream monetary economics texts assert that it does. The role of the central bank is one of “passive accommodation.”¹⁶ This brings us to the foundational core of Modern Monetary Theory.

Modern Monetary Theory (MMT)

Modern Monetary Theory (MMT) is a comprehensive description and theory of the monetary system that provides a coherent account of how a government can call into existence, reduce, and employ quantities of its monetary unit in the service of its economic system. MMT is distinguished from mainstream macroeconomic theory in that it places money and monetary institutions at the center of analysis. The concern throughout is with the

¹⁶ As Randall Wray has noted, “If banks in the aggregate are short of required reserves, the central bank must supply them either through open market purchases or the discount window; trying to restrict reserves through fewer open market purchases merely forces banks to the window. It is simply impossible for the fed to refuse to supply the reserves needed by the system” (Wray, 1998: 118).

operational realities of the financial and monetary systems. MMT embraces the notion that currency is issued as a public monopoly, that government spending expands the money supply by increasing commercial bank reserves at the Fed, that taxes serve to drain reserves from the banks, and that the funds employed to make tax payments to the federal government actually originate with the government. By extension, the national debt is the accumulated sum of dollars created and spent by the federal government that have not yet been returned to the government in the form of taxes. These dollars remain outside of the government (they are “outside money” to the private sector), and represent “net financial assets” of the private sector.¹⁷

MMT explicitly rejects – as an instance of the fallacy of composition¹⁸ – the neoclassical argument that currency-issuing national governments operate under the same sort of *hard budget constraint* as households and firms. The opportunities and constraints that operate on households cannot be extended to governments without serious qualification. Households obviously cannot “live beyond their means” in the long run, but sovereign currency governments are virtually without limit in this regard.

“Inside Money” and “Outside Money.” MMT starts with, and is grounded in the state and credit theories of money. In its description of the workings of the monetary system, MMT has both vertical and horizontal dimensions. The vertical dimension views how the consolidated U.S. Government (U.S. Treasury and Federal Reserve working in concert) transacts business

¹⁷ Net savings exist in the private sector as cash, commercial bank reserve balances at The Fed, and as securities balances (Treasury securities), also held at the Fed.

¹⁸ The tendency to generalize from our personal (micro-level) experience to the collective (macro-level) experience is a poor guide to economic analysis and policy. Only properly-designed and rigorous scientific study can do that.

with private parties through the mediation of the banking system. Acting vertically downwards, important aspects of the U.S. Government's policies and operations are independent of the banking system. In the language of economics, these are *exogenous* to the banks. The credit-money so created is termed "outside money," as it originates external to the banking system. The horizontal dimension views the banking system as a user of state-issued money, conducting business with other banks and – importantly, with the non-bank private sector (households and firms). The horizontal dimension thus describes an *endogenous* process, whereby banks are privileged creators of new money, thereby providing essential liquidity to the private sector, in the form of loans. Bank-created money is termed "inside money."

Economists in the MMT tradition draw distinctions between inside money and outside money because only the consolidated government is able to create new financial assets. Banks are only able to magnify the effect of the money introduced into the financial system by the government, in the normal conduct of their business. Thus, all horizontal transactions within the banking system will net to zero, as is well known.¹⁹

Money Mechanics. At the federal level, fiscal policy – as a logical necessity – essentially determines the quantity of new money directly created by the Federal Reserve. Deficit spending entails the creation of new money by the Fed, which is tantamount to an expansion of the money supply. When the federal government "borrows", a deposit at the Fed is created, in

¹⁹ This is also a mathematical necessity, insofar as (assets = liabilities), and (debits = credits) across the entire system.

the form of a new treasury security.²⁰ The national debt, then, must be equal to the sum total of all new money created in support of the government's spending programs.

Understanding how money actually moves through the banking system is vitally important to a proper grasp of the fundamentals of federal finance. The key distinction is that between the issuer of a currency unit (the government) and the users of the currency (the nongovernmental sector). The vertical and horizontal dimensions of the banking system and their relation to U.S. federal fiscal operations have been described well by economist and financier Warren Mosler (2011: 4-5):

When the government 'spends,' the Treasury disburses the funds by crediting bank accounts. Settlement involves transferring reserves from the Treasury's account at the fed to the recipient's bank. The resulting increase in the recipient's deposit account has no corresponding liability in the banking system. This creation is called 'vertical', or exogenous to the banking system. Since there is no corresponding liability in the in the banking system, this results in an increase of non-government net financial assets.

When banks create money by extending credit (loans create deposits), this occurs completely within the banking system and results in a liability for the bank (the deposit) and a corresponding asset (loan). This nets to zero.

Thus vertical money created by the government affects net financial assets and horizontal money created by banks does not, although its use in the economy as productive capital can increase real assets.

The mistake that is usually made is comparing what happens in the horizontal system with what happens at the level of government accounting. At the horizontal level, debt is the basis for horizontal money creation. Therefore, it is often assumed that debt must be the basis for the creation of money by government currency issuance. This is not the case.

²⁰ Today, U.S. treasuries are essentially bank deposits that pay interest. Gone are the days when securities were issued in the form of engraved certificates of ownership; everything is electronic now.

Mosler's point becomes clear when one understands that, even though bank reserve accounting grew out of standard financial accounting, and hence employs the usual accounting terms and concepts, the precise meaning of "liability" is not that it is a debt *per se*. The consolidated government (the Treasury and the Fed considered together) are mutually-responsible for one another's debts, so that, in a true sense, neither is, nor can be, indebted to the other. Further, still, as the federal government spends money, reserves that are credited by the Fed to commercial bank reserves (retained, by the way, by the Fed) are used to purchase U.S. Treasury securities. This involves a transfer from the buying bank's reserve account at the Fed to the government's account (also at the Fed). At the time that the Treasury securities are sold, or reach maturity, the reserve accounting entries of the parties are merely reversed, resulting in a deposit credited to the investor-lender. At the government level, the switch back is from securities to reserves. The net effect has been to reduce (or constrain) overall liquidity for some period of time, with the investor compensated for their inconvenience.

A feature of inestimable importance in this chain of transactions is that the federal government did not have to rely upon taxes, sales of federal assets (e.g., lands), or further borrowing in order to redeem its debts. The government is not a household or a firm that must generate revenue in order to operate. Rather, the government operates by crediting and debiting accounts on its consolidated balance sheet. The Fed and the Treasury settle their accounts between themselves via offsetting accounting entries. Consequently, it is hard to avoid the conclusion that U.S. Treasury debt is not truly a "debt." The U.S. Government's balance sheet, therefore, does not resemble that of a firm or household, nor states and localities. The federal government does not "finance" its spending via tax collections, other

revenues, or debt issuance. As a monopoly issuer of its own currency unit, operating in a floating exchange rate system, the U.S. Government neither has, nor doesn't have, money. Rather, it is able to call into existence as much money as it needs to make necessary expenditures.

Sectoral Balances Framework

A more complete picture of the potential contribution of MMT to the theory of public finance can be gleaned by wedding MMT to the late Wynn Godley's sectoral balances approach.²¹ Students and scholars of public finance would do well to understand how government spending and currency transactions function at the operational level. Some relevant questions are: How does the U.S. Government finance trillions of dollars in budget deficits over time, without causing economic distress? Does the U.S. Government really, truly "borrow" to cover budget deficits? How has the U.S. federal government been able to spend as much as it has in recent years without igniting hyperinflation? What actually "happens" when the U.S. Government spends money? How, exactly, does it take place, in operational terms? What is the operational chain of events? Similarly, what happens when the U.S. Government collects taxes? We ask these questions, because they matter a great deal. Modern public finance students and scholars alike simply need to understand just how money is created, how it actually flows, and what triggers its disappearance. It is not possible to accurately depict the role of the federal government in the modern world without discussing the entire

²¹ While other admirers of Godley's work will likely disagree, the most significant writings, in this author's opinion, are Godley and Cripps (1983), and Godley and Lavoie (2007a; 2007b). A useful compilation and introduction to Godley's work are Lavoie and Zezza (2012) and Papdimitriou and Zezza (2012).

macroeconomy. This, in order to provide the necessary context, it is imperative that one begin with the economy.

The approach is to analyze the governmental sector in the macroeconomy in terms of its interactions with other sectors. Economist Milton Friedman (1984: 3) once famously quipped that, “One man’s spending is another man’s receipts.” The method is therefore to follow the flows of funds. All “flows” of income and expenditures sum to “stocks,” which are the aggregate of flows during some period, considered at a point in time.²² This will ensure consistency of treatment of stocks and flows. Thus, all revenues to a government over, say, a fiscal year will sum to the total revenues for that year.

Stock-Flow Consistent Analysis. When we take into account all resource flows as between various economic actors, and among the various sectors, (private, government, and foreign sector), these will net to zero. From the standpoint of the “sources and uses of funds,” it cannot be otherwise. In the sectoral balances approach, as a matter of accounting identity, all stocks and flows, both positive and negative, will net to zero. This is in order to preserve the logic of “*stock-flow consistency*.” From this perspective, it becomes easy to see why it is impossible for all economic sectors to enjoy surpluses (i.e. to “save money”) simultaneously. In order for one sector to run a surplus, at least one other sector simply must run a deficit of sufficient magnitude for the following identity to be true:

$$\textit{Spending} = \textit{Income}$$

$$\textit{Spending} - \textit{Income} = 0$$

²² “Flows” are movements of funds over some unit of time (say, over one year). “Stocks” are the net products of flows (in or out, up or down), measured at a certain point in time.

and, $Surpluses = Deficits$

therefore, $Surpluses - Deficits = 0$

The *sectoral balance rule* is that the sum of all sectoral balances is equal to zero. A deficit in one sector of the economy must be offset precisely by surpluses in other sectors. Whenever one sector spends less than its income, at least one other sector simply must spend more than its income. This is required by the logic of sectoral accounting. There is no reason why any one sector ever needs to balance its receipts with its expenditures; however, the economic system taken as a whole is always in balance. This means that, in the face of persistent foreign trade deficits, if the private sector should decide collectively to save more than it spends, then the public sector must spend more than it saves. In other words, when the private sector is in surplus, and assuming either a balanced foreign trade sector or one in deficit, then the public sector must run a corresponding deficit.

Sectoral deficits accumulate over time into what amounts to financial debts. Sectoral surpluses, in like manner, accumulate into financial assets. Based on the requirements of stock-flow consistency, one sector's (or one firm's, or one household's) debts are another's assets. It is important to be clear about this point, because the modern economy essentially consists of a web of interlocking balance sheets, with assets on some balance sheets corresponding to offsetting liabilities on someone else's balance sheet.

Fiscal deficits may be said to finance the preferences to save of the non-governmental sector. In this case, government deficits promote levels of demand that are sufficient to generate income levels that are consistent with the private sector's aggregate savings plans.

The deficit must, therefore, be sufficient to close the gap between private saving less investment, on the one hand, and exports less imports, on the other:

$$(G - T) = (S - I) - (X - M) \quad \text{eq. 1}$$

Equation 1 is derived from equation A-4 in Appendix A. In order for $[(S - I) - (X - M)]$ to be in surplus, $(G - T)$ must be in deficit, if national income is to remain stable.

A sector – any sector – will finance its deficit spending through dissaving” (or exchanging assets for spendable bank deposits – essentially “liquidating” assets), or by “borrowing” (incurring debt) to obtain spendable bank deposits. In a manner of speaking, when the U.S. private sector decides to save, it does so in safe government securities, which generates a budget deficit, precisely, in order to satisfy private desires to save (even where some private domestic savings are ultimately placed in private financial securities). By implication, the aggregate saving of the private sector can be no less than the budget deficit. “When all is said and done, it will be true that the government deficit will equal the sum of the private sector balance and the external sector balance” (Wray, 2012: 120). Across the entire economy, then:

$$\begin{array}{ccc} \textit{Total} & & \textit{Total} \\ \textit{Financial} & = & \textit{Financial} \\ \textit{Assets} & & \textit{Liabilities} \end{array} \quad \text{eq. 2}$$

Government securities emerge from this analysis as the “backbone” of the private wealth-generating process. Thus, for the government sector:

- 1) Deficits sum to private financial assets; and,
- 2) Surpluses sum to private financial liabilities.

And for the private sector:

- 1) Deficits sum to government financial assets; and,
- 2) Surpluses sum to government financial liabilities.

Thus, other things being equal, the private domestic financial balance ($S - I$) increases when national income increases. The government fiscal balance ($G - T$) will fall when national income rises. In a recession, as national income falls, the government fiscal balance will rise as it spends more to automatically counteract the business cycle (precisely, via the operation of “automatic stabilizers”).

A vitally important conclusion from the sectoral balances approach is that one sector’s deficit is another sector’s surplus. This is implied by the following macroeconomic identity (Wray, 2012: 5):

$$\begin{array}{l} \textit{Domestic} \\ \textit{Private} \\ \textit{Balance} \end{array} + \begin{array}{l} \textit{Domestic} \\ \textit{Government} \\ \textit{Balance} \end{array} + \begin{array}{l} \textit{Foreign} \\ \textit{Balance} \end{array} = 0 \quad \textit{eq. 3}$$

A government sector “deficit” means that the government is spending more than it is taking in, and it implies that the private sector is taking in more than it is spending. This is why there are funds to be borrowed; government spending plus private investment equals taxes plus total household and business saving.

A basic policy dilemma is that both the public and private sectors cannot run surpluses at the same time. We cannot observe a federal government in budget surplus with a non-governmental sector in a net savings position. Mathematically, it cannot happen. “To reduce the US government sector from 8-9 percent or so of GDP ... toward balance requires some combination of a private sector movement toward deficit and a current account movement toward surplus amounting to a [combined] total of 8-9 percentage points of GDP” (Wray, 2012:

18). Persistent budget surpluses are not possible because the private sector cannot operate in a deficit position indefinitely. Households and firms will simply exhaust all of the net money hoards, savings, and government bonds they have in order to provide a government surplus.

Persistent budget surpluses can be even more dangerous than deficits, however, having the effect of reducing incomes and increasing debt accumulation in the private sector that can impart strong deflationary biases in the public's expectations. (As a matter of logical necessity, it should be obvious that surpluses can only be sustained as long as there have been deficits in prior years.) Cutting U.S. federal budget deficits would throw the burdens of the deficit reduction onto other sectors: by identity, equation 3 indicates that the government balance cannot be put into surplus in the face of a foreign sector deficit unless and until the private sector is driven into a deficit as large as the combined foreign sector deficit plus the planned government sector surplus.

Budget Deficits and Surpluses: What is Their Use?

The Principle of Effective Demand. Government budget deficits and increases in the national debt are justified in Post Keynesian economics on the basis of the principle of effective demand. Contrary to Say's Law (i.e., supply creates its own demand), Keynesian effective demand theory calls for the production of goods will adjust itself to accommodate the demand for goods. The economy is viewed, therefore, as demand-determined – in both the short- and the long-run – and not constrained by supply or some given level of resource endowments. This does not mean, however, that there are no limits to the rate at which a given economic system can grow, in the short run. It merely indicates that typically, modern industrial economies operate with

significant supply-side slack (i.e., at well less than full employment levels). In conditions of chronic, significant unemployment (and under-employment), the conditions of supply are therefore not generally the problem; the problem is chronically insufficient demand.

A clear implication for demand-constrained economies is that investment expenditure will be independent of saving. Investment and capital (wealth) accumulation will therefore not be a function of household savings decisions (Shapiro, 1977; Davidson, 2011). This is contrary to the neoclassical model of aggregate supply and demand, where supply is hypothesized as a vertical line in the long run.²³ Most neoclassical economists adhere to the classic Solow growth model, where growth in the long run is limited only by two factors: the rate of population growth and the rate of technological advance. Both are supply-side growth determinants; there is no place in Solow's model for government-led (i.e., demand-driven) growth prospects. Only the supply side counts. This is also implied by the mainstream assumption of the neutrality of money.

Post Keynesian thought denies the very notion that the long run state of the economy is constrained by supply. Consequently, for Post Keynesians, the principle of effective demand always applies, in both the short-run and the long-run. The Post Keynesian perspective is that it is investment undertaken by firms that creates savings; that investment neither derives from savings, nor do investment loans originate in bank deposits. As long as the economy is operating at less-than-full-employment levels, the financing of additional investment will be a

²³ The implication is that, in the long run, the economy cannot grow so as to produce at higher levels of output, regardless of the overall price level. Neoclassical economists apply the same thinking to the Philips Curve sloping upwards vertically at the so-called "natural rate of unemployment," or at the hypothetical prevailing non-accelerating inflation rate of unemployment (NAIRU). They further contend that NAIRU is unique to a given economy, and is independent of actually current or historical experienced levels of unemployment.

function of the creditworthiness of the borrower and the banks' evaluation of the borrowers' investment opportunities. The presumed scarcity of finance does not bear on the availability of funds for investment (Parguez, 2001). This Post Keynesian theory of credit and investment is based, of course, on the notion of monetary endogeneity, discussed above. Arestis and Swayer summarized this view (2006: 19), as follows:

The notion that the budget should always be in balance (or even on average in balance) is rejected on the grounds that a balanced budget is generally not compatible with the achievement of high levels of aggregate demand.

The Meaning and Usefulness of Budgetary (Im)Balance. There appears to be a “spiritual faith” in the desirability and appropriateness of balanced budgets. Generally, such faith is based on beliefs that: (1) deficits necessarily result in inflation; (2) deficits result in increased borrowing that “crowds out” funds for private investment; (3) chronic deficits contribute to the growth of national debt levels to unsustainable proportions in the long run; and (4) federal deficits and the national debt destroy jobs, reduce investment spending and have generally deleterious effects on economic growth in the long run. Leaving aside arguments about the moral turpitude of spendthrift governments, it is the basic position of MMT that each of the preceding beliefs is false. Modern monetary theory would thus contend that mainstream, neoclassical economics suffers from certain critical misunderstandings respecting the supposed evils of budget deficits, and the alleged benefits of surpluses.²⁴

Fiscal surpluses do not provide any greater capacity to government to spend; in fact, on the basis of the sectoral balances framework, we can conclude that government surpluses only

²⁴ These misunderstandings derive, perhaps in large part, from the mistaken popular view of governments as a “household.”

deprive the private sector of wealth. A fiscal surplus, as a matter of mathematical necessity, involves the government sector taking more credit-money resources out of the private sector (via taxation²⁵) than it puts back in (via expenditures). Government efforts to run a surplus would literally push the nongovernmental (private) sector into a deficit position, forcing the domestic private sector to incur increasing amounts of debt in order to maintain its standard of living. This becomes a recipe for disaster, as at some point, private debt will become sufficiently large, as to generate fears of default. At some threshold level of debt, the private domestic sector will seek to deleverage. Debt-financed consumption may therefore be expected to fall, thereby actually compounding the problems caused by the government surplus.

Budget deficits, public or private, on the other hand, are the sole source of financial wealth creation. In order for any economic actor to accumulate net financial wealth, other actors must be willing to incur deficits (that is, to “deficit spend”). Deficit spending is the initial cause of net new financial wealth. No one can accumulate financial wealth unless another party is willing to go into debt by deficit spending. Net spending generates income. No society can decide to have more income without first spending more. This is the basic fact of economic growth and development. Further, spending is not income-constrained. A society does not first have to be wealthy in order to generate more wealth. Actors in all sectors can generate greater wealth, by spending more than they earn; precisely, by deficit spending.

²⁵ By definition, governments cannot run surpluses in the long run via borrowing; only taxes, charges and fees are capable of generating budget surpluses.

The conventional view of the national debt is similar to that of budget deficits: government borrowing from the private sector has been painted as an insidious and sinister practice, because it deprives the private sector of funds that could have been devoted to financing investment and growth. The mainstream conceives government as simply a financial intermediary. When government borrows, it engages in a process of government intermediation, replacing market intermediation. This presumed state of affairs is the root cause of the presumed “crowding out” of private investment funds by government borrowing.

Post Keynesians deny that crowding out is inevitable, however, especially for economies that operate at less-than-full employment levels in the long run. Investment funds are not limited to the amount that households and firms have saved.²⁶ Credit-money is created as needed in the economy by banks and the Federal Reserve, acting in conjunction with the U.S. Treasury, on demand. Debt is, in fact, the financial vehicle whereby the economy functions and grows. This is an economic necessity, and it has been a boom to human development and prosperity. Debt is therefore not a problem *per se*; but having too much debt can be a problem, especially for private firms, households, and subnational governments (states and localities). Here we draw a distinction between *public debt* and *private debt*:

Private Debt: Reduces private net worth, unless offset by a corresponding productive asset on the debtor’s balance sheet.

Public Debt: Domestically-held debt does not reduce the nation’s net worth, but is a source of wealth to its holders, unless the proceeds are employed in wealth-subtracting endeavors.

²⁶This is the source of the so-called “loanable funds” doctrine.

The critical point here is that, in order not to become a genuine burden on the economic system, the proceeds of debt – whether private or public – ought to be put to value-enhancing uses. That is, the funds will need to be invested in positive return-on-investment projects.

Domar (1944: 823) said as much over seven decades ago, writing that, “in order to have a growing income there must be, first of all, a rising volume of monetary expenditures.

Secondly, there must be an actual growth in productive powers in order to allow the increasing stream of expenditures to take place without a rise in prices.”

Consequently, it is highly misleading to think of a sovereign, currency-issuing government as either “saving”, “borrowing”, “being in debt”, or “running out of money.” These terms have no clear relationship to the same terms as applied to households, firms, and subnational governments. The critical distinction is between those economic actors that – owing to the conditions of money and credit that they confront – face a hard budget constraint, and those that do not.²⁷

Theory of Budget Constraints.

What Makes Government Budgets “Hard” and “Soft”? Budgetary “hardness” influences and conditions the level of potential government expenditure. To see why this is so requires us to understand how the borrowing capacity at various levels of government is dependent upon the general conditions of money and credit that confront governments at each level. Only then will it be possible to discern how the monetary and fiscal arrangements together determine how “hard” and “soft” budgets are. The received wisdom among mainstream economists is the view

²⁷ See Appendix B.

of “sound finance”: that a given government’s spending is constrained by its tax revenue in the long run, its credit (ability to incur debt), and the willingness of the public to accept ever larger amounts of “printed money” (which is seen as a direct consequence of accumulating debt at levels beyond what taxpayers are willing to fund). Further, mainstream economists generally hold that budget constraints implicitly recycle income through the private sector via taxation and expenditure programs, both of which are inherently redistributive. Consequently, activist government policies may be restrained by imposing budgetary “hardness;” the notion is that, the “harder” the budget constraint, the better.

The basic requirements of a “hard” budget constraint are:

1. **Limited Borrowing.** Borrowing is to be strictly confined to capital items. Borrowing to finance current expenditure on consumable items is eschewed as efficiency-reducing. Self-funded (or self-liquidating) capital or current account items may be exceptions, however (subject to severe restrictions).
2. **“Watertight” Finances.** Intergovernmental revenue sharing, grants and subventions and/or intermingling of revenues with other governments’ revenues is either prohibited or must be insignificant. This requirement assumes that there is a pre-existing optimal coincidence of the benefit area (the geographic extent of the benefits of a given governmental program) with the tax area of the jurisdiction that provides the program (Oates, 1972). If the two do not coincide, then some amount of equalization funding from above, or horizontal cross-subsidies from peer governments may be necessary. If the extent of such cross-subsidization (either from above, or laterally) is significant, then

there may exist a *prima facie* case for merging political units, insofar as at least one government's budget is "soft," and can be "hardened" through combination.

3. **Open Borders.** There is free movement of people (labor) and capital across jurisdictional boundaries, without hindrance.
4. **Intergovernmental Competition.** Competition among governmental jurisdictions for industry, labor, capital, tourism, etc. is unrestricted.

The "Soft" Federal Budget Constraint. Deriving from the work of Kornai (1992), McKinnon (1992, 1994, 1997), Vickrey (1996), and Weingast (1995), "soft" budget constraints are associated with both the direct and indirect availability of alternative means of financing expenditure (i.e., "backdoor", off-budget, or shift-able expenditures or risk). Under certain monetary conditions, governments among the advanced, industrialized countries face a soft budget constraint. Monetary conditions since the 1980s have permitted such governments to access capital markets in ways that would have been unthinkable in the early 20th century; specifically, to incur debt in order to finance, not only capital items, but current consumption of goods and services, as well. The U.S. federal government has easy access to national capital markets, but this hasn't always been the case. By the mid-20th century, the American federal budget constraint became increasingly "softened". Economist Randall Wray (1998: 138-9) explains that,

The U.S. abandoned the gold convertibility standard during the Great Depression, although it was restored internationally after World War II. However, at the end of the 1960s, and into the early 1970s, fears of a run on the U.S. dollar led the federal government finally to abandon convertibility. Since that date, gold reserves could never again constrain deficit spending.

In 1929, on the eve of the stock market crash of that year, the U.S. Government's debt level was relatively small by contemporary standards – about 16.3 percent of GDP. Until that time, the national debt would ebb and flow, mainly in response to wartime finance. Once wars ended, however, the debt would fall as a percent of GDP. Until the depression decade of the 1930s, the federal government exhibited behavior consistent with a hard budget constraint. Savage (1990) and White & Wildavsky (1991) attribute the shift in the federal government's fiscal stance since mid-century to the political erosion of the "balanced budget norm." However, it is much more likely that President Roosevelt's abandonment of the gold standard in 1933 had more to do with the softening of the federal budget constraint.

Roosevelt took the U.S. off the gold standard in order to avoid the worsening debt-deflation that held the economy in its grip at that time. By so doing, the president effectively relaxed the U.S. federal borrowing constraint. The explosive build up of federal debt of the 1930s, and in response to the mobilization for war in the 1940s, can be directly traced to this event. The national debt reached 112 percent of GDP in 1945. With the cessation of hostilities, however, the debt steadily fell back to 26.4 percent of GDP by 1974, but rose again to record highs in the 1980s and 1990s. In 2019, the debt shows no sign of ceasing what has become an endless increase.

Why has the national debt ebbed and flowed but continued to grow after the war? The answer is to be found in the implicit monetary restraints that were embodied in the institutional arrangements agreed upon by the parties to the Bretton Woods agreement in the immediate postwar period, and in President Richard Nixon's closing of the gold window at the Fed in 1971. The postwar period confined nations to a regime of fixed exchange rates, and the

relatively more strict monetary stabilizations under the Marshall and Dodge Plans for the economic resuscitation of Europe and Japan after World War II. The strict conditions imposed on the European countries and Japan for the elimination of deficits and economic stabilization “anchored” a common price level using a fixed exchange rate system pegged to the U.S. dollar.

The European countries and Japan pegged their currencies to the dollar in a very strong form, leaving the U.S. as the only country in the system pegged to gold. Foreign governments that accumulated U.S. Treasury bonds were able to exchange them for gold at the official price of \$35 per ounce at the U.S. Treasury. This meant that, in order to stabilize prices on international markets, gold would have to flow into or drain out of the U.S. Treasury. Mostly, gold drained out of the Treasury during the 1950s and 1960s. As a direct consequence of these monetary arrangements, the U.S. federal budget remained in relative balance until the end of the 1960s.

The fiscal implications of a strict gold standard are that federal spending would be constrained by the amount of gold that the U.S. Federal Government could redeem. The gold standard would therefore operate much like a hard balanced budget amendment in the long run – and one that could not be so easily side-stepped. Concerns over the persistent gold drain and the perceived decline in U.S. global competitiveness prompted President Nixon to close the gold window in August 1971, and to devalue the dollar against other major currencies. Thus a new regime of floating exchange rates was ushered in, and with it a dramatic *softening* of the previous monetary restraint on U.S. fiscal policy. Therefore, it should come as no surprise that the 1970s was a decade of high inflation in the U.S. and other industrial countries. Budget

constraints on U.S. state and local governments remained “hard,” however.

Owing to the dollar’s role and history as the international reserve currency, and the economies of scale necessary to achieve this status, the U.S. dollar is dominant in international debt transactions. The dollar remains dominant, which confers on the U.S. the privilege of always being able to issue debt denominated in its own currency. The U.S. can therefore borrow as readily abroad as it does domestically. There is therefore nothing (literally) that the capital markets can do to impose fiscal discipline on the U.S. federal government. Unlike the American states and localities, the U.S. Government possesses its own central bank, it controls the value of its own money, and it can borrow virtually unlimited sums denominated in its own currency. These combined features of the U.S. federal fiscal reality mean that the U.S. federal government faces what can only be described as an “ultra-soft” budget constraint. This has enabled the federal government to deficit spend, virtually at will.

From the historical record, economist Randall Wray concludes that “the universal abandonment of the gold standard by all of the large economies has eliminated all rational barriers to deficit spending” (1998: 124). This statement raises the question of whether vastly increased federal spending can propel effective demand to the point where accelerating inflation will be the inevitable consequence? A related question is whether the net nominal savings of the American household is sufficiently large to absorb increased federal spending, thereby avoiding rapid price inflation? The net savings position of the American population is an important variable. It was observed prior to the onset of the Global Financial Crisis in 2007-08 that public and private sector spending levels still left over 8 million involuntarily unemployed. Given our stock-flow consistent analytical approach, the sheer number of

unemployed provides a strong indicator that the desired savings of the American population was higher than that which accommodates the federal deficit (Wray, 1998: 129). This also signals clearly that the government would be able to increase its deficit spending, up to the point where desired savings would be equal to actual savings – and without generating upwards pressure on prices.

The Spectre of Inflation

In Post Keynesian analysis, inflation is not triggered by the amount of money that the government creates. Stock-flow consistent analysis demonstrates why this must be so. We start with the observation that, although money is endogenous to the monetary system, the supply of, and demand for, money is subject to very different constraints. The money supply is constrained by the balance sheets of commercial banks and the central bank, both of which are partially (and often, in large part) a function of the demand for money. The demand for money is constrained by the portfolio choices of the private non-governmental sector (firms and households). In any coherent model of the monetary circuit, the supply for money will always rise or fall to meet the demand for money. There can never be any excess demand for money in the system, so that excess money cannot be a causal factor in driving price inflation (i.e., too much money chasing too few goods). Consequently, Post Keynesian economic theory generally, and MMT explicitly, deny the operation of the quantity theory of money. The sources and uses of funds must always balance out over any accounting period.

Inflation can become a factor to consider in two sets of circumstances, one demand-driven, the other cost-driven, respectively: (1) where the degree of capacity utilization exceeds

its normal levels (Duménil and Lévy, 1999)²⁸; and (2) where there are significant and persistent rises in basic resource prices, such as the oil price shocks of the 1970s. These permanently raise the costs of production across industrial sectors, placing upwards pressure on prices. Both variants, however, are factors only because they butt up against constraints in the real economy; that is, on the supply side. In the demand-driven case, the level of investment rises so high as to threaten to exceed the ability of the economy to absorb additional investment spending. In the supply-driven case, costs are ratcheted upwards more-or-less permanently. Both, however, are to be considered special cases which are not likely to be commonly experienced.

Most Post Keynesians will view inflation as primarily a consequence of conflict between the owners of capital and laborers over the distribution of income (Taylor, 1991; Cassetti, 2003). The precise mechanism works through wage demands prompted by the higher profits that generally accompany higher rates of capacity utilization (Kaldor, 1985: 39). The higher rates of capacity utilization is generally also accompanied by relatively higher rates of growth and low rates of unemployment, especially in the short run, where investment in capacity is unable to keep pace with the expanded demand. In the past 40 years or so, however, growth rates and inflation do not appear to be correlated (Hein, 2002). This is, perhaps, due to the decline in labor union power, stabilization of world commodities prices, and the building up of buffer stocks. The most important point is that inflation can increase for reasons that have little or nothing to do with “excess demand.”

²⁸ Duménil and Lévy (1999) contend that the level of inflation will be proportional to the difference between actual and normal capacity utilization levels. This relationship may be dubious, but their larger point is well-taken: the economy cannot operate at close to, or in excess of, full capacity without overheating.

Operational Realities of the Fiscal-Monetary System

There is a world of difference between the core operational reality of a fiat-credit monetary system, with an economically-sovereign government operating as a monopoly issuer of its own currency in a system of freely floating exchange rates, and the (former) functioning of a fixed rate system under a gold standard, a Euro-zone-type monetary union, or any other system of governments lacking complete monetary sovereignty. Under fixed exchange rates, a gold standard, or the former gold exchange standard, governments will face operational constraints which are necessarily and automatically imposed on their fiscal and monetary flexibility. Under fixed exchange rates, the gold standard, or a monetary union having a single monetary policy, each government must operate under constraint if the system is not to gyrate wildly, potentially placing great strain upon the country's exchange rates, gold supplies, and or prices.

Under the gold standard, governments were forced to subordinate their fiscal policies to the imperative of maintaining stability of the international monetary system. Simply put, governments were forced to behave as though they were *currency-users* – rather than *currency issuers* – of their own currency in their own country. This is a significant observation, one that directly bears on the long-run fiscal sustainability of the United States Federal Government. For a very different core functional reality pertains to the United States after the 1971 U.S. abandonment of the gold standard. Possessing its own sovereign currency, unconstrained by a gold conversion standard, the United States Government no longer is revenue-constrained; federal spending (or lending, for that matter) can precede taxation (and bond issuance). As noted above, this is precisely because there cannot be a bank reserve drain prior to there being a reserve add.

The present reality requires federal spending and/or taxation to be adjusted so as to accommodate the nongovernment sector's net savings preferences at as close to full employment levels as possible. That implies that federal deficits and debt accumulation are residual quantities, mere accounting artifacts, or records of the fiscal outturns that have been driven largely by the private sector. They lose all importance as goals in themselves. The government, for its part, is relegated to control of short-run interest rates, which permits "big government" the latitude to control the entire range of interest rates across the yield curve. Viewed against this backdrop, mainstream neoclassical concerns with budget deficits and the national debt appear entirely misplaced; they are vestigial concerns of a bygone reality. But their lingering acceptance constrains economic policy in, at times, perhaps highly damaging ways.

The neoclassical view lingers on in artificial and unnecessary requirements, such as the constitutional U.S. debt ceiling, the prohibition against direct sales of treasury securities to the central bank, as well as that against even temporary Treasury overdrafts at the Fed. These reflect the realities of the past; the core monetary and fiscal functions of government no longer operate as they once did. A proper understanding of MMT reveals these constraints now to be self-imposed and needlessly constraining. They are no longer binding. Further, these rules no longer serve to stabilize the economic system, as they once did. Worse, they reduce artificially the range of policy options that the government recognizes as both practical and legitimate.

The current core reality is that federal borrowing, strictly speaking, is actually not required in order to make expenditures. The U.S. government spends first, creating the

necessary reserves, as needed, *ex nihilo*. The U.S. is a monetarily-sovereign currency issuer. As such, it is never revenue-constrained. In a technical sense, the act of borrowing (operationally, this constitutes a removal of bank reserves; a *reserve drain*) is largely an “afterthought.”²⁹ The bond sales permits the Fed to purchase the same in the open market, which enables the accumulation of a sufficient inventory of bonds for the Fed to control short-term interest rates. The government issues bonds largely as an interest rate management operation; for, letting any untaxed or unborrowed spending to remain outstanding would cause the overnight bank rate (the federal funds rate) to fall towards zero.³⁰ Once again, the sales of Treasury debt is not, strictly-speaking a financing operation, but intended to maintain positive short-term interest rates.

For our purposes, the goal of budgetary balance, insofar as maintaining exchange rates at fixed levels no longer matters; it is an anachronism. It is retained in the service of purely ideological purposes. Deficit spending – an indispensable tool of modern government – remains anathema to mainstream economists, despite the clear evidence that the link between federal revenues and outlays has been fairly permanently severed.

Sound Finance and Functional Finance

Politicians, citizens and the many economists who believe that the federal government must collect taxes in order to “finance” government spending react with horror to the now \$23 trillion in federal debt. They implicitly believe that the federal government is like a household, where the outflows of funds must be matched by an equivalent inflow in order to ensure long

²⁹ In fact, the Treasury selling debt directly to the Fed would have the same effect.

³⁰ The presence of excess reserves would prompt banks to try lending them overnight on the federal funds market, thereby driving the rate to zero. Now that the Fed is paying interest on reserves (IOR), the rate set on bank reserves is effectively the floor on the Federal Funds Rate.

run sustainability. Wray summarizes the attitude well: “No household can run continuous deficits, therefore, no government can do so either” (1998: 157). To continuously deficit spend is not to be “fiscally prudent.”

Sound Finance: The Conventional View. According to conventional views, tax revenues provide the income needed by governments over the long run in order to finance their spending plans. (Even were governments to issue debt to cover certain expenditures, in the long run, the debt is to be repaid out of tax revenues.) Deficits can and do arise in times of economic hardship. Governments may “bridge” the resulting shortfall in revenues by selling debt obligations to a public willing to hold them. In those instances where governments sell interest-bearing bonds in order to finance deficits, the money supply will increase, provided that the Fed will cooperate by “accommodating” the spending by increasing commercial bank reserves. Inflation can be the result, insofar as the money multiplier permits an approximately ten-fold increase in the money supply.³¹ Where the Fed does not accommodate, or only partially accommodates the Treasury’s fiscal policy, a small or zero direct impact on price inflation may be expected. Further, according to the conventional view, government borrowing is likely to add to the overall demand for loanable funds, thereby driving up interest rates, and “crowding out” private sector borrowing for business investment. Crowding out may be partial or complete, according to the theory, but in any case, it depresses production and output in the long run, perhaps to a considerable extent.

Respecting federal fiscal sustainability, the conventional view is that persistent deficits are to be avoided. Permanent or chronic deficits run the risk of raising public and investor

³¹ Assuming a reserve requirement of approximately 10 percent.

expectations that the debt cannot be retired, or only with great difficulty or inconvenience. If some critical threshold of debt-to-GDP ratio is reached, it is believed, the investing public will lack sufficient funds to lend to the government (Reinhart and Rogoff, 2009). Before that stage is reached, some contend that foreign investors may require the U.S. Government to borrow in foreign currency denominations and/or the International Monetary Fund may force upon the U.S. austerity programs (as the European Central Bank has done to Greece). In the “worst case scenario,” foreign market would be closed to U.S. borrowing altogether – effectively shutting out Uncle Sam from future borrowing.

The received wisdom among mainstream economists, then, is that of “sound finance”: that a given government’s spending is constrained by its tax revenue in the long run, its credit (ability to incur debt), and the willingness of the public to accept ever larger amounts of “printed money” (which is seen as a direct consequence of accumulating debt at levels beyond what taxpayers are willing to fund). Further, mainstream economists generally hold that budget constraints implicitly recycle income through the private sector via taxation and expenditure programs, both of which are inherently redistributive. Consequently, activist government policies must be restrained by imposing budgetary “hardness;” the notion is that, the “harder” the budget constraint, the better.

Functional Finance: The Alternative View. The alternative view sees the notion of hard budget constraints – especially those at the national level – as unduly constraining on a monetarily- and economically-sovereign government. Here we must make a distinction as between national and subnational governments. On the one hand, monetarily- and economically-sovereign national governments, which are able to (1) incur debts in their own domestic currency, and (2) control

the value of their own money, face relatively “soft” budget constraints. Subnational governments, on the other hand, face similar budget constraints as households and firms, insofar as the currency that they employ is issued and managed by a third party (the government), whose money serves as the means of final settlement of debts.

This view holds that any sovereign government that issues its own currency, that borrows in its own currency, and that owns its own central bank, cannot be subject to a hard budget constraint. For instance, the U.S. Government ‘spends’ by issuing its own government-created money. The money so expended ends up as cash held by the public, and in the banking system as bank reserves held at The Fed. Consequently, as economist Randall Wray (1998: 137) observes, “If a government can create at will the money that the public willingly offers [its] goods and services to obtain, then the government’s spending is thus never constrained by narrow ‘financing’ decisions.”

The functional finance view is that conventional theory all but completely misunderstands the nature and institutional and procedural workings of government spending, taxation, and borrowing.³² Sustained economic growth and development will require persistent budget deficits, owing to the private sector’s preferences for the accumulation of a certain proportion of its wealth in the form of dollar savings. In order for the private sector to run net surpluses, in the face of persistent trade deficits, the governmental sector simply must – as a matter of accounting identity – run net deficits. This is in accordance with the sectoral balances approach.

³² “Most of the pressures that governments currently believe arise from international markets are actually self-imposed constraints that arise from a misunderstanding of the nature of government deficits” (Wray, 1998: 75).

The late Abba P. Lerner's definition of *functional finance* is as follows (Lerner, 1943: 39):

The central idea is that government fiscal policy, its spending and taxing, its borrowing and repayment of loans, its issue of new money, and its withdrawal of money, shall all be undertaken with an eye to the results of these actions on the economy and not what is sound or unsound.³³

Functional finance thus embraces the Keynesian idea that governments expand spending and/or reduce taxes during times of economic contraction, and vice versa. In this connection, Lerner held that the "first principle" of functional finance was to maintain the rate of government spending at neither much above nor much below the rate at which the price level would purchase all that is produced. The "second principle" is that government should employ taxation primarily as the means to drain the economy of purchasing power; not to raise money.

Functional finance is based on the critical observation that all government spending is enabled through the creation of the government's fiat money – not through collected tax revenues or the proceeds of bond sales. On this view, taxes are not required to finance federal spending, but to maintain demand for the state's money, and to reduce or eliminate inflationary pressures that accompany government money creation. Bond sales serve to drain excess reserves from the banking system, in order to (1) maintain positive short-run (overnight) interest rates; (2) reduce inflationary impulses; and (3) provide a desirable, low-risk asset for households to invest their savings. In this important sense, government bonds are an important source and repository of the nation's wealth. Obviously, the principles of functional finance do not apply to subnational governments, where the principles of sound finance continue to have relevance. Only

³³ Thus, functional finance calls for evaluating public policy based on its real world impacts, rather than deduce the consequences by reasoning from axioms, or "first principles."

monetarily-sovereign governments can employ Lerner's principles to affect economic outcomes, and only in those instances where money itself has become an important feature of the economic process.

Lerner's functional finance is neither to be associated with the "deficit hawk," nor the "tax and spend" position. Deficit hawks contend that federal deficits push interest rates higher, produce inflationary pressures, "crowd out" private investment, and place a burden of debt repayment on future generations. Lernerian macroeconomics, and its Keynesian antecedents specifically argues that these effects are the consequences of a confluence of factors, and are not directly caused by deficit spending by the central government (Nell and Forstater, 2003). Lerner's views also differ from those of the "deficit doves" as he argues that the doves lend credibility to the hawks' arguments implicitly by the denial of their claims. Lerner would rather see doves shift the axis of the argument to focus on the institutions and procedures by and through which real effects are to be had. Functional finance does not conclude anything in advance about what the proper budget outcome should be; everything depends upon the macroeconomic objectives to be pursued, and that, in turn, depends on the context – the general economic conditions that prevail at a particular point in time. As such, either budget deficits or budgetary balance may be called for. Neither is privileged as an end in itself.

Forstater (2003: 165) observes that, "Functional finance is not a policy; it is a framework within which all sorts of policies may be conducted." The vital question posed by functional finance is, what to do today? That is, how should government employ the ready tools of

government finance to address problems confronting the country today? ³⁴ Public policy should be judged by its results in the real world – in terms of employment, productivity, and price stability – and not by what happens to the budget and debt numbers. The essence of Lerner’s conceptual framework is that the “correct” size of federal deficit is the one that will permit the country to achieve its employment and output objectives, regardless of its magnitude. Fiscal policy can only properly be considered and assessed within the context of specific economic conditions; never in the abstract. The deficit itself doesn’t matter; it is the output and employment response that matter.

The size and mix of federal spending programs should be determined based on the real costs and benefits of such spending, in comparison with other uses of the funds, and regardless of whether the spending will be supported by taxes, borrowings, or printing money. Such financing considerations are largely irrelevant at the federal levels. What matters most is the positive uses to which the money injected into the economy are put. Only after the optimal level and mix of spending has been determined should fiscal policymakers turn to the question of their financing. In this context, the monetary system is to be viewed as the instrument through which the federal government seeks to meet its economic and political objectives. Tax levels may be adjusted in order to maintain the purchasing power of the dollar at some target level.³⁵

³⁴ Thus, “The core message of the doctrine of functional finance is that the government budget should be regarded as a means to attain real-economy goals like maximum output and employment. The size of the budget deficit and government debt does not matter *per se*; the budget should be assessed only in the light of its impact in the real economy” (Berglund, 2003: 243).

³⁵ Generally, it is wise to build in some modest level of inflation, so as to prevent the onset of deflationary expectations, which can prove fatal to any economic system.

As regards the possibility of retirement of the federal debt, the functional finance position is that this should never be an end in itself. The effect of budget surpluses is that the national government takes from the private sector more than it puts back. This depresses economic activity, via a contraction of bank reserves. Consequently, the functional finance perspective is that only when an economy already is overheated from price inflation should contractionary fiscal policy, perhaps involving budget surpluses, be employed. Thus, according to the first principle of functional finance, taxes should be raised only in order to control inflation, and to give currency its value (Turgeon, 2003: 116).³⁶ Setting federal tax receipts at levels that equal government expenditures in a stable or growing economy may help to avoid rapid price inflation.

It is worthwhile observing that, even where public policy is not explicitly based on the functional finance framework, “it is the expectation that government functional finance policy will be used when crises occur that gives stability to our economy” (Colander, 2003: 47). The implicit government commitment to countercyclical fiscal policy permits much more growth than the private sector would otherwise be willing to risk. “This means that the expectations of the policy often make it unnecessary for the policy to be used” (Ibid.). Thus, while policymakers find it politically expedient to pay lip service to the conventional dogma of “sound finance,” meaning a balanced or a surplus budget, sound finance actually is not all that sound! There have been many instances where countercyclical policies have been employed to offset declines in private spending; indeed, these days, it is largely automatic. Even in relatively prosperous times, capital investment – whether private or public – requires spending in advance of project completion,

³⁶ Lerner was even stricter than this, arguing that, “No matter how much interest has to be paid on the debt, taxation must not be applied unless it is necessary to prevent inflation. The interest can be paid by borrowing still more” (1943: 356).

and often without a clearly identified source of financing. In this instance, countercyclical spending and capital investment – “unsound finance” – actually is more sound. The strictures of sound finance continue to apply at the subnational level. At the level of national finance, as long as government policymakers believe that they need to raise money in order to spend money, “they will continue to support policies that constrain output and employment and prevent us from achieving what are otherwise” available (Mosler, 2010: 30). That is the real problem with the American federal system of public finance; not the existence of chronic deficits, nor a growing national debt.

Implications and Conclusions

The key to understanding the realities of federal finance stem from two vital distinctions: First, the distinction as between governments that face a hard budget constraint, and those whose budgets are “soft;” Second, the distinction between vertical (outside) money and horizontal (inside) money.

Importance of the Budget Constraint. Whether a given government faces a soft or a hard budget constraint depends upon the access to, and conditions of credit that it enjoys. Governments with easy access to credit, that can borrow freely in their own currency, and/or which have access to other public authorities able to support the government’s finances, or which will guarantee its debts, are subject to soft budget constraints. Just the opposite conditions pertain to governments that face hard budget constraints. Soft budget constraints are characteristic of monetarily-sovereign national governments. Sovereign currency governments are effectively unconstrained by their national budgets. Households, firms, and subnational governments are much more constrained, insofar as none of these institutions is

monetarily-sovereign. It is obvious from these criteria that the U.S. federal government is highly unconstrained as to its monetary and fiscal capabilities.

Outside Money as a Source of Private Wealth. Outside money, supplied by the government as it makes expenditures, provides the private sector with net new financial assets; inside money, supplied by private banks, cannot do so. A firm grasp of this distinction reveals the value of Abba Lerner's far-reaching insights: (1) that currency issuance via federal expenditures increases net private financial wealth, while taxation withdraws wealth from the non-governmental private sector; and (2) that debt issued by the U.S. Treasury, far from being a fiscal operation, actually is a monetary operation used to drain reserves from the banking system, thereby permitting the Federal Reserve the wherewithal to make good on its target policy interest rate. Far from being a drag on economic growth and development, public debt – outside money – is a source of private wealth and social well-being.

Misunderstanding of the real effects of public debt has led to great inefficiency in the allocation of federal spending to productive uses, precisely, by unduly limiting the quantity of debt that can be issued.³⁷ Post Keynesian public finance challenges the premise that the U.S. Federal Government “borrows” money in order to finance expenditures. The economic reality is far different from the formal legal arrangements. Government bonds sales do not “finance” spending directly, but instead provide the private sector with an interest-bearing alternative investment to cash and/or excess bank reserves. This would imply that, “there is no possibility that the [federal] government might find itself in a crisis because it is unable to ‘roll over’

³⁷ According to Mathew Forstater (Nell & Forstater, 2003: 55): “The confusions regarding national budget deficits and the debt are important and real.”

bonds” (Wray, 1998: 88). Further still, it should not be lost sight of that the government itself always decides what rate of interest it wishes to pay on its bonds; markets simply must accept it. (This is the policy rate; in the US, the federal funds rate.) The federal government’s deficit spending is not subject to market forces, as long as the bonds are issued denominated in the government’s own money.

One important conclusion to be drawn from this paper is that, at some level, it is not possible to disentangle monetary from fiscal policy. While it may be pedagogically-convenient to expose students to fiscal and monetary policy in sequence (it is debatable which should be covered first), the proper study of federal finance reveals that, it makes much more sense to think and speak of the *government’s fiscal-financial-monetary program, or FFMP*. Wray reinforces the point when he writes that, “an understanding of the nature of government finance not only sheds light on ‘fiscal policy,’ but also on the nature of what is normally called ‘monetary policy.’” (Wray, in Nell and Forstater, 2003: 141). For it is a unified program.

The effective fiscal policy space available to the U.S. Government is larger than ordinarily is presumed. This is because the federal government possesses great financial strength, which derives not only from the sheer magnitude of its taxing power, but, just as importantly, from its control over the monetary system. As a consequence, the federal government is not constrained by its ability to tax or borrow. There does exist a threshold beyond which the federal government would find it difficult to run deficits and incur debt; that is, the danger that a rapid increase in bank reserves would trigger uncontrollable price inflation. Thus, the real limit to the U.S. Government’s ability to deficit spend and run up debts is the willingness of the American people to tolerate price inflation.

An inflationary scenario could occur, for instance, should the federal government ever attempt to increase spending to levels which were beyond the capacity of the productive sector of the economy to absorb. This point would be reached where the public simply refuses to accept more currency from the government in exchange for selling its goods and services.³⁸ This would be the same thing as saying that the public has no further desire to increase its net nominal savings of U.S. dollars. It is hard to imagine just how and when this point might be reached; however, it does remain a hypothetical possibility.

The U.S. Constitution grants the federal government a monopoly power in the issuance of money and the regulation of its value. The U.S. dollar itself is a public monopoly (Mosler, 2010). This means that the general price level is in large part determined by the prices paid by the government for the goods and services that it consumes, and the collateral it demands when it makes loans. Should the federal government lend unlimited amounts to third parties, without requiring appropriate levels of collateral security, then private borrowing would mushroom quickly, which is what makes necessary the regulation of bank assets and capital ratios.

It is important to recognize that an “inflation tolerance limit” to federal expenditure is a *political* limit; not an economic limit. The federal government cannot spend with reckless abandon. Should the federal government spend in the long run at rates that exceed productivity growth, and tax at levels that are too low, two consequences are likely: (1) poor

³⁸ Randall Wray (1998: 87) writes of this limit that, “Government spending is constrained only by private sector willingness to provide goods, services or assets to government in exchange for government money ... Anything which is for purchase in terms of the domestic currency can be had through government creation of fiat money.”

investment and low returns (i.e., malinvestment), and (2) the onset of price inflation. By contrast, if government taxes at levels that are too high, and spends too little, a government surplus would be the most likely result, creating a private sector deficit, and tending towards recession, unemployment and deflation. Excess private debt levels will become evident – a clear indication of the private sector suffering a shortage of dollars. Other self-imposed restraints on federal spending would tend towards the same results, including: the federal debt ceiling, provisions of the Antideficiency Act, and a Balanced Budget Amendment.³⁹

On the basis of the discussion in this paper, it is easy to see that the common usage of the term “budget” is the cause of much confusion when applied to economically sovereign currency-issuing governments. The very notion of a “budget” evokes visions of households budgets, where resources are constrained, such that outflows cannot exceed inflows in the long run. But households are not economically-sovereign currency-issuing governments, and therefore are not able to continuously spend in their own currency. A monetarily-sovereign government, on the other hand, is able to spend in excess of its receipts in the long run, precisely because it creates the very currency that it spends, and does so every time it spends. Households must generally save or borrow before they spend, but in the case of sovereign governments, this sequence is reversed: governments spend before that tax or borrow.⁴⁰ This fact significantly reduces the financial flexibility of households: they cannot deficit spend without limit without facing bankruptcy. On the other hand, sovereign currency-issuing

³⁹ Warren Mosler (2010: 21) sees these and similar attempts to restrain federal spending as being “imposed by a Congress that does not have a working knowledge of the monetary system,” and thus, “counterproductive with regard to furthering public purposes.”

⁴⁰ Else, how would private parties obtain the government’s money to begin with?

governments are able to deficit spend in the long run; they cannot be compelled to default against their will.

MMT teaches that governments will have greater fiscal flexibility (i.e., options) to the extent that they are able to:

- (1) Issue and control their own domestic currency;
- (2) Operate in a flexible exchange rate regime;
- (3) Issue sovereign debt denominated in their domestic currency; and,
- (4) Do not guarantee the foreign currency debt of third parties.

Finally, MMT is presented as a theoretical framework that respects the institutional realities of the financial and monetary system. MMT places money at the center of the framework for analysis of the macroeconomy, but it explicitly rejects the Friedman-style quantity theory of money, as unrealistic, overly-rigid, and unnecessarily constraining on economic policy. It is argued that Functional Finance and Modern Monetary Theory best describe the operations of a credit-money financial system (Roche, 2011; Nell and Forstater, 2003). The essential attributes of such a system are that they possess monetary sovereignty, are monopoly suppliers of their own currency, and that their currency freely floats in the international system of exchange rates. Further, the economy exists as an interconnected web of balance sheets, where the government is able to deficit spend, and where debit and credit entries clear accounts as between the transacting parties. Government deficit spending credits the private sector, and its wealth grows; payment of taxes and retirement of public debt debits the private sector, and its wealth shrinks. These attributes describe the U.S. monetary system in its essentials.

APPENDIX - A

Derivation of the Sector Balances Framework

The usual way that national income and product is presented is to relate gross national product (GNP) to gross domestic product as follows:

$$GNP \equiv C + I + G + \underbrace{(X - M)}_{GDP} + FNI \quad eq.1$$

Where:

- GNP = gross national product
- GDP = gross domestic product
- C = consumption spending
- I = net investment spending
- G = government expenditure
- X = exports
- M = imports
- FNI = net external income flows

Introducing taxes, we can re-write eq. 1 as:

$$GNP - T \equiv C + I + G + (X - M) + FNI - T \quad eq.2$$

Where: T = taxes

Eq. 2 may be rearranged according to the three major sectors: private, governmental, and foreign:

$$\underbrace{(GNP - C - T) - I}_{Household\ Saving} \equiv \underbrace{(G - T)}_{Government\ Balance} + \underbrace{(X - M + FNI)}_{Foreign\ Sector\ Balance} \quad eq.3$$

Where:

- $(GNP - C - T)$ = total income less household consumption
- $(GNP - C - T) - I$ = total private sector domestic saving
- $(G - T)$ = government sector balance (spending less net taxes)
- $(X - M + FNI)$ = foreign sector (current account) balance

Thus, the private sector balance is equal to the government sector balance plus the current trade balance. Rearranged algebraically and expressed in somewhat different terms, we can derive the following equation:

$$\underbrace{(S - I)}_{\substack{\text{Private} \\ \text{Savings} \\ \text{Net of} \\ \text{Investment}}} + \underbrace{(T - G)}_{\substack{\text{Net} \\ \text{Government} \\ \text{Surplus} \\ \text{(Deficit)}}} + \underbrace{CAB}_{\substack{\text{Current} \\ \text{Account} \\ \text{Balance}}} \equiv 0 \quad \text{eq.4}$$

From equation 4, it is clear that it would be impossible for all three sectors to run surpluses at the same time. In point of fact, at the current time, the U.S. private sector cannot grow wealthier (by running surpluses) unless the federal government sector runs offsetting budget deficits. It simply cannot be done, mathematically. By implication, if the federal government were to make serious efforts to decrease its deficit, or to actually run a surplus, it would impose large deficits (losses) on the private domestic sector, which would suffer a net reduction of wealth. In the aggregate, spending equals income:

$$E = Y \quad \text{eq.5}$$

Where: E = Expenditures
Y = Income

In the sectoral balance approach, as a matter of accounting identity, all stocks and flows, both positive and negative, will net to zero. This is in order to ensure “stock-flow consistency;” thus, for the government sector:

- (1) Deficits sum to private sector assets;
- (2) Surpluses sum to private sector debts.

It is important to grasp the insight provided by Professor Milton Friedman above, that one individual's expenditure (cost) is another individual's revenue (income). One person's debt is another person's asset. That is, any given monetary flow can be both an expenditure and a revenue item, depending upon whether one is the payer or the recipient. Likewise, a given credit item is both a liability (debt) of the borrowing party, and an asset (an IOU) to the lending party. This constitutes the fundamental basis of the sectoral balances perspective.

APPENDIX - B

Private Sector Constraints on Access to Credit

All spending agents have access to credit-money, but on different terms than one another. Economically-sovereign governments are unconstrained in their access to credit, insofar as the state will undertake all of its expenditures, ultimately, out of new money creation. As indicated in the text, the operation of fiscal policy always involves the expansion and contraction of money through the electronic transfer of reserves banking system. Private firms and households, on the other hand, are constrained in their access to money and credit.

Firms' access to money and credit will be constrained by the real extent of their long run sales and profit expectations, and – more importantly – by the banks' evaluation of the firms' cash flow prospects. Individual households also must demonstrate that their future income will generate sufficient cash to comfortably make debt service payments. Banks thus “ration” credit to borrowers. It is thus key to recognize that the ability of households and firms to generate cash flows is central to their being able to access credit from lending institutions. In the case of business firms, aggregate profit expectations can be derived from the demand equations on which national income accounting is based:

$$P = (C + I + G) - (W + R + T)$$

$$P = C + I + (G - T) - (W + R)$$

where: P = effective earned profits;
 C = consumption spending;
 I = investment spending;
 G = government outlays;

T = taxes;
 W = wages and salaries; and,
 R = business retained earnings

A few comments are in order: Government outlays are exogenous in both the short- and the long-run (Giovannoni, 2006b; Giovannoni and Parguez, 2007a). This implies that the rate of growth in government spending is a basic determinant of the expected growth in profits. This is obviously a significant implication, which directly contradicts neoclassical economic sensibilities. In the above, taxes, T, are partly exogenous, insofar as the tax rate is concerned. A growth in T will have an obvious negative effect on expected profits.

As Parguez (2011) argues, the positive role of government deficits in promoting profits is explained by the fact that the government will not seek to cover the growth in spending, G, through higher taxation, as long as the private sector is running a surplus (net of the foreign sector, of course). This is consistent with the three-sector sectoral balances framework. Consumption spending, C, also is exogenous to other incomes and expenditures, exerting the greatest impact on profits in the long run, and can be expressed as follows:

$$C_t^* = W_t + d \cdot D_h$$

where: C_t^* is based on households' long run expectations regarding the growth of their net worth; and,
 $d \cdot D_h$ is the net change in household debt.

References

- Arestis, Philip (1996). "Post-Keynesian Economics: Towards Coherence." *Cambridge Journal of Economics*, Vol. 20, No. 1 (January 1996): 111-135.
- Arestis, Philip, and Michael Sawyer, eds. (2006). *A Handbook of Alternative Monetary Economics*. Cheltenham, UK and Northampton, MA, USA: Edward Elgar.
- Berglund, Per Gunnar (2003). "Equality and Enterprise: Can Functional Finance Offer a New Historical Compromise?" Ch. 14 in Nell, Edward J., and Matthew Forstater, eds. (2003). *Reinventing Functional Finance: Transformational Growth And Full Employment*. Cheltenham, UK and Northampton, MA: Edward Elgar, pp. 243-265.
- Cassetti, Mario (2003) "Bargaining Power, Effective Demand and Technical Progress: A Kaleckian Model of Growth," *Cambridge Journal of Economics*, 27(3): 449-464.
- Colander, David (2003). "Functional Finance, New Classical Economics and Great-Great Grandsons" Ch. 2 in Nell, Edward J., and Matthew Forstater, eds. (2003). *Reinventing Functional Finance: Transformational Growth And Full Employment*. Cheltenham, UK and Northampton, MA: Edward Elgar, pp. 35-51.
- Cotrell, Allin (1994). "Post Keynesian Monetary Economics: A Critical Survey." *Cambridge Journal of Economics*, vol. 18, pp. 587-605.
- Davidson, Paul (1972). *Money and the Real World*. New York: Macmillan.
- Davidson, Paul (1978). *Money and the Real World*, 2nd ed. New York: Palgrave Macmillan.
- Davidson, Paul (1994). *Post Keynesian Macroeconomic Theory: a Foundation for Successful Economic Policies for the Twenty-First Century*. Cheltenham, UK: Edward Elgar.
- Davidson, Paul (2011). *Post Keynesian Macroeconomic Theory: A Foundation for Successful Economic Policies for the Twenty-First Century*, 2nd Edition, Cheltenham, UK: Edward Elgar.
- Domar, Evsey D. (1944). "The 'Burden of the Debt' and the National Income." *American Economic Review*, Vol. 34, No. 4 (Dec.): 798-827.
- Dowd, Keith (2000). "The Invisible Hand and the Evolution of the Monetary System," Ch. 7 in *What is Money?* John Smithin, ed. Abingdon: Routledge: 139-156.
- Duménil, Gerard, and Dominique Lévy, (1999). "Being Keynesian in the Short Term and Classical in the Long Term: The Traverse to Classical Long-Term Equilibrium." *The Manchester School* 67(6): 684-716.
- Eichner, Alfred, and Jan Kregel (1975). "An Essay on Post-Keynesian Theory: A New Paradigm in Economics." *Journal of Economic Literature*, 13(4): 1293-1314.

- Eichengreen, Barry (1996). *Golden Fetters: The Gold Standard and the Great Depression, 1919-1939*. Oxford: Oxford University Press.
- Forstater, Matthew (2003). "Functional Finance and Full Employment: Lessons from Lerner for Today," Ch. 11 in Nell, Edward J., and Matthew Forstater, eds. (2003). *Reinventing Functional Finance: Transformational Growth And Full Employment*. Cheltenham, UK and Northampton, MA: Edward Elgar, pp. 160-170.
- Friedman, Milton (1984). "Quantity Theory of Money," *The New Palgrave – Money*. J. Eatwell, M. Migute, and P. Newman, eds. London: Macmillan.
- Giovannoni, Olivier (2006). *Croissance, Répartition et Politique Economique*, Ph.D. dissertation, University of Nice Sophia-Antipolis, France.
- Giovannoni, Olivier, and Alain Parguez (2007). "What Drives Profits? An Income-Spending Model." Ch. 5 in Eckhard Hein and Achim Truger, eds., *Money, Distribution and Economic Policy*. Cheltenham, UK and Northampton, MA, USA: Edward Elgar, pp. 97-118.
- Godley, Wynne, and Francis Cripps (1983). *Macroeconomics*. Oxford, England: Fontana.
- Godley, Wynne, and Marc Lavoie (2007a). "Fiscal Policy in a Stock-Flow Consistent (SFC) Model." *Working Paper No. 494*. Annandale-on-Hudson, NY: The Levy Economics Institute of Bard College.
- Godley, Wynne, and Marc Lavoie (2007b). *Monetary Economics: An Integrated Approach to Credit, Money, Income, Production and Wealth*. London: Palgrave MacMillan.
- Goetzmann, William N. (2016). *Money Changes Everything: How Finance Made Civilization Possible*. Princeton University Press.
- Graeber, David (2011). *Debt: The First 5,000 Years*. New York: Melville House.
- Graziani, Augusto (2003). *The Monetary Theory of Production*. Cambridge: Cambridge University Press.
- Hein, Eckhard (2002). "Monetary Policy and Wage Bargaining in the EMU: Restrictive ECB Policies, High Unemployment, Nominal Wage Restraint and Inflation Above the Target." *Banca del Lavoro Quarterly Review*, 222, 299-337.
- Hudson, Michael (2004). "The Archeology of Money: Debt versus Barter Theories of Money's Origins," in *Credit and State Theories of Money: The Contributions of A. Mitchell Innes*, L. Randall Wray, ed., Cheltenham: Edward Elgar.
- Innes, A. Mitchell (1913). "What is Money?" *The Banking Law Journal*, May, pp. 377–408.
- Innes, A. Mitchell (1914). "The Credit Theory of Money." *he Banking Law Journal*, Vol. 31, Dec./Jan., pp. 151–168.
- Kaldor, Nicholas (1985). *Economics Without Equilibrium*. Armonk, NY: M.E. Sharpe.

- Keynes, John Maynard (1930). *A Treatise on Money*. 2 vols. New York: Harcourt and Brace.
- Knapp, Georg F. (1924). *The State Theory of Money*. (Originally published 1905.) London; Macmillan.
- Kornai, Janos (1992). *The Socialist System: The Political Economy of Communism*. Princeton University Press.
- Lavoie, Marc (1992). *Foundations of Post-Keynesian Economic Analysis*. Aldershot UK and Brookfield, CT, USA: Edward Elgar.
- Lavoie, Marc, and Gennaro Zezza, eds. (2012). *The Stock-Flow Consistent Approach: Selected Writings of Wynne Godley*. London: Palgrave Macmillan.
- Lavoie, Marc (2009). *Introduction to Post-Keynesian Economics*. With a new Postface. London: Palgrave Macmillan.
- Lerner, Abba (1943). "Functional Finance and the Federal Debt." *Social Research*, Vol. 10 (1) February: 38-51
- Lerner, Abba (1947). "Money as a Creature of the State." *American Economic Review*, 37, 312-317.
- Menger, Carl (1892). "On the Origin of Money," *Economic Journal* vol. 2 pp. 239-255. Trans. Caroline A. Foley.
- McKinnon, Ronald I. (1992). *The Order of Economic Liberalization*. Baltimore: The Johns Hopkins University Press.
- McKinnon, Ronald I. (1994). "Market-Preserving Fiscal Federalism: The Conditions of Money and Credit." Ohlin Lecture, Stockholm School of Economics. Unpublished manuscript.
- McKinnon, Ronald I. (1997). "Market-Preserving Fiscal Federalism in the American Monetary Union." Ch. 5 in Mario I. Blejer and Teresa Ter-Minassian, eds. *Macroeconomic Dimensions of Public Finance: Essays in Honor of Vito Tanzi*. London and New York: Routledge, pp. 73-93.
- Minsky, Hyman P. (1994). "Failed and Successful Capitalisms: Lessons from the Twentieth Century." Hyman P. Minsky Archive, Paper n. 47 Available online at: http://digitalcommons.bard.edu/hm_archive/47. Accessed April 21, 2019.
- Minsky, Hyman P. (1995). "Financial Factors in the Economics of Capitalism." Hyman P. Minsky Archive, Paper n. 64. Available at: http://digitalcommons.bard.edu/hm_archive/64 Accessed April 21, 2019.
- Mitchell, William, L. Randall Wray, and Martin Watts (2019). *Macroeconomics*. London: Macmillan International Higher Education and red Globe Press.
- Mosler, Warren (1996 & 2012). *Soft Currency Economics II: What Everyone Thinks They Know About Monetary Policy is Wrong*. Christiansted, US Virgin Islands: Valance Co., Inc.

- Mosler, Warren (2011). Cited in Cullen Roche, "The Concept of Vertical and Horizontal Money Creation" *Seeking Alpha*, April 5, 2010. Accessed April 19 2019. Available online at: <https://seekingalpha.com/article/197049-the-concept-of-vertical-and-horizontal-money-creation>. The original citation is from Warren Mosler (2010), *The Seven Deadly Innocent Frauds of Economic Policy*. Christiansted, US Virgin Islands: Valance Co., Inc., p. 2, footnote 2.
- Nell, Edward J. (1996). *Making Sense of a Changing Economy: Technology, Markets and Morals*. London: Routledge.
- Nell, Edward J., and Matthew Forstater, eds. (2003). *Reinventing Functional Finance: Transformational Growth And Full Employment*. Cheltenham, UK and Northampton, MA: Edward Elgar.
- Oates, Wallace E. (1972). *Fiscal Federalism*. New York, Harcourt Brace Jovanovich.
- Palley, Thomas (1996). *Post Keynesian Economics: Debt, Distribution and the Macro Economy*. London: Macmillan.
- Papadimitriou, Dimitri B., and Gennaro Zezza, eds. (2012). *Contributions in Stock-Flow Consistent Modeling: Essays in Honor of Wynne Godley*. London: Palgrave Macmillan.
- Parguez, Alain (2002a). "Money Without Scarcity: From the Horizontalist Revolution to the Theory of the Monetary Circuit," in L.-P. Rochon and M. Vernengo, eds., *Credit, Interest Rates and the Open Economy: Essays on Horizontalism*. Cheltenham, UK and Northampton, MA, USA: Edward Elgar.
- Parguez, Alain (2002b). "A Monetary Theory of Public Finance: The New Fiscal Orthodoxy: From Plummeting Deficits to Planned Fiscal Surpluses." *International Journal of Political Economy*, Vol. 32, No. 3, Heterodox Perspectives on Money and the State (Fall): 80-97.
- Parguez, Alain (2011). "Money Creation, Employment and Economic Stability: The Monetary Theory of Unemployment and Inflation." Ch. 5 in Claude Gnos and Louis-Philippe Rochon, eds., *Credit, Money and Macroeconomic Policy: A Post Keynesian Approach*. Cheltenham, UK and Northampton, MA, USA: Edward Elgar, pp. 71-97.
- Passinetti, L. L. (2005). "The Cambridge School of Keynesian Economics." *Cambridge Journal of Economics*. 29(6): 837-848.
- Reinhart, Carmen M., and Kenneth S. Rogoff (2009). *This Time is Different: Eight Centuries of Financial Folly*. Princeton University Press.
- Roche, Cullen (2011). "Understanding The Modern Monetary System." April 5. Available online at: <http://ssrn.com/abstract=1905625>. Accessed April 20, 2019.
- Ruml, Beardsley (1946). "'Taxes for Revenue are Obsolete,'" *American Affairs*, Jan., VIII:1, pp. 35-39.
- Savage, James (1990). *Balanced Budgets and American Politics*. Ithaca, New York: Cornell University Press.

- Shapiro, Nina (1977). "The Revolutionary Character of Post-Keynesian Economics." *Journal of Economic Issues*. 11(3): 541-560.
- Taylor, Lance (1991). *Income Distribution, Inflation, and Growth: Lectures on Structuralist Macroeconomic Theory*. Cambridge, MA: The MIT Press.
- Turgeon, Lynn (2003). "The History of Abba Lerner's Supply-Side Inflation." Ch. 7 in Nell, Edward J., and Matthew Forstater, eds. (2003). *Reinventing Functional Finance: Transformational Growth And Full Employment*. Cheltenham, UK and Northampton, MA: Edward Elgar, pp. 116-122.
- Vasconcelos, Daniel De Santa (2014). "Minsky on 'Big Government'." *Revista de Economia Politica* 34(1): 15-38.
- Vickrey, William (1996). "Fifteen Fatal Fallacies of Financial Fundamentalism: A Disquisition on Demand Side Economics," Unpublished typescript. October 5, 1996. available online at <http://www.columbia.edu/dlc/wp/econ/vickrey.html>. Accessed April 9, 2019.
- Weingast, Barry R. (1995). "The Economic Role of Political Institutions: Market-Preserving Federalism and Economic Development." *Journal of Law, Economics and Organization*. Vol. 11(1): 1-31.
- White, Joseph, and Aaron Wildavsky (1991). *The Deficit and the Public Interest: The Search for Responsible Budgeting in the 1980's*. Berkeley, CA: University of California Press.
- Wray, L. Randall (1998). *Understanding Modern Money: The Key to Full Employment and Price Stability*. Northampton, MA: Edward Elgar.
- Wray, L. Randall (2007a). "Demand Constraints and Big Government." *Working Paper No. 488*. Annandale-on-Hudson, NY: The Levy Economics Institute of Bard College.
- Wray, L. Randall (2007b). "Endogenous Money: Structuralist and Horizontalist." *Working Paper No. 512*. Annandale-on-Hudson, NY: The Levy Economics Institute of Bard College.
- Wray, L. Randall (2012). *Modern Monetary Theory*. Basingstoke: Palgrave Macmillan.