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Toward a New Instrumental Macroeconomics: Abba Lerner and Adolph Lowe on Economic Method, Theory, History and Policy

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This paper argues that the ideas of Abba Lerner and Adolph Lowe contain overlapping and complementary insights and themes that may contribute to the development of a new approach to macroeconomics, and that have rather specific practical policy implications. This approach might be called Instrumental Macroeconomics, after Lowe's instrumentalism, but it could be termed Functional Macroeconomics after Lerner's functional finance without changing the intended meaning.[1] Terminology aside, what is required today is a macroeconomics that considers macro-policy goals at the ground level of theoretical practice (a *political* macroeconomics), a macroeconomics that recognizes that the system is dynamic and transformational, with major features changing over time (an *historical* macroeconomics), a macroeconomics that pays careful attention to institutional frameworks and arrangements (an *institutional* macroeconomics). What is required is a macroeconomics rid of neoclassical microfoundations, but that considers sectoral as well as aggregate relations (a *structural* macroeconomics), technological change as well as monetary production, and that avoids the unacceptable mechanism of aggregate models that bypass the complex problems of human agency by slipping in unacceptable motivational and behavioral assumptions.

The works of Lerner and Lowe serve as an interesting point of departure in thinking about such a new approach to macro theory and policy. While there are some important areas of overlap in their work and thought, Lerner and Lowe also have some important differences in areas of emphasis, which, it shall be argued, are strikingly complementary. Lerner's functional finance deals with aggregate proportionality and balance, while much of Lowe's work additionally emphasizes sectoral relations. While full employment and price stability were lifetime concerns of both, Lerner–following Keynes--focused more on monetary factors, while Lowe emphasized issues of structural and technological change. A Lowe-Lerner synthesis offers a powerful starting point in fleshing out an alternative approach to macroeconomic theory and policy, one which–because of its careful attention to historically changing social and institutional structures–is as fresh and relevant today as it was when Lerner and Lowe began formulating their historical and institutional approach to macroeconomic theory and public policy.

Instrumental Analysis and the Method of Functional Finance

Lowe's investigations of the technological and structural features of contemporary capitalism from the 1920s to the 1950s led him to the position that modern industrial systems exhibit inherent macroeconomic instability, necessitating an abandonment of the traditional deductive method and its replacement with an alternative instrumental method for economic theory and public policy. Rather than taking only the initial conditions as given, and employing deductive analysis to predict and explain, Lowe proposed also taking as given a vision of desired macro-outcomes. These macro-goals would not be determined by economic analysis, but rather would be independently determined by democratic political process. Analysis would then "work backwards" from the macro-goals to the economic means for their attainment (Lowe, 1965; Forstater, 1997).

Such a conceptualization of the means-ends relation is also found in Lerner's functional finance. Functional finance was first put forward by Lerner in his article, "Functional Finance and the Federal Debt" (1943) and in

his *Economics of Control* (1944).[2] Sound finance confuses the means and the ends; a balanced budget is taken to be the end. It is seen as "good" in and of itself. In many cases it is even a politically stipulated goal. For Lerner, what matters is the effects of the government budget and other fiscal and monetary policies. Is the current fiscal stance goal-adequate? Does it promote our macroeconomic goals?

Traditional economics would say we are mixing up our positive and normative economics here. But both Lowe and Lerner rejected the overly dichotomous positive-normative distinction. Lowe refers to the approach that begins analysis without consideration of macro-outcomes as "a radical positivism interested only in the explanation and prediction of movements 'wherever they might lead'" (Lowe, 1969, p. 7). For Lowe, the separation of the positive and normative "can no longer be justified;...recent developments demand the conscious integration of the analytical and normative aspects" (1967, p. 180).

Lerner echoes this view when he distinguishes between "objective" and "normative," not based on whether one considers macro-outcomes, but whether one does so openly and honestly:

> Objectivity turns out to be not the avoidance of concern with what is *desired* in a pure concentration on what *is* , but merely the avoidance of smuggling in an advocacy of desired objectives without making it clear that this is being done or making it clear whose are the desires being considered.(Lerner, 1969, p. 131, original emphasis).

In 1941, Lerner used the analogy of driving an automobile to defend the use of government controls to "steer" the economic system onto the right path. While respecting market forces, Lerner likened *laissez-faire* to a refusal to take hold of the "economic steering wheel." We may now add that it also helps to know your destination. In Lowe's instrumental framework, once we know our destination and from where we begin our journey we may consider alternative suitable routes for successfully completing the trip.

While Lowe claimed that "the ultimate concern of [*On Economic Knowledge*] is not methodological" certainly he explicitly deals with methodological matters and offers instrumentalism as an alternative methodological approach for economic theory and public policy. Lerner's outline of functional finance was not presented with regard to methodological issues, but it constitutes an important methodological position which is fully consistent with Lowe's instrumental method. In fact, in his contribution to *Economic Means and Social Ends* , a symposium exploring issues raised in Lowe's *On Economic Knowledge* , Lerner explicitly and fully embraced instrumentalism, writing that:

> Only through the conscious application of instrumental analysis can there be any hope of further development or even survival of the economic or any other aspect of human society.(Lerner, 1969, p. 136)

Lowe and Lerner share some important methodological positions. First, by emphasizing the incorporation of macro-goals from the beginning of theoretical analysis, they reject not only the traditional positive-normative dichotomy, but also the standard treatment the State as "outside" the economic system. Mainstream economics, as well as a number of heterodox traditions, have tended to take the approach of analyzing a pure market system, or the logical operation of capitalism, prior to consideration of the role of the State. Instead, with Lerner and Lowe, the State is part of the economic system, and must be part of analysis from the start. Second, both Lerner and Lowe reject the view of the economic system, including both market and state, as static and unchanging. This view is implicit if not explicit in all approaches that believe there to be universal economic "laws" for all societies, or at least all stages of capitalism, throughout history. Lack of recognition of fundamental change in the nature and role of the State also has serious implications for the range of conceivable policies and their effectiveness. Thus, constant, careful attention to historical, institutional, structural, technological, and associated social and environmental change is fundamental to the Lowe-Lerner approach Lowe and Lerner go to great lengths to discuss the dangers of authoritarianism and how precious freedom must be defended, but they simply do not buy the argument that economic policy necessarily violates individual freedom or that the absence of policy necessarily guarantees and protects it. While both support a democratic political process as the means by which macro-goals should be stipulated, it is clear that historical experience, study of the economy, and legislation such as the Full Employment bill and Humphrey-Hawkins have led each to assume some basic set of macro goals as desirable: at the most fundamental level, full

employment and price stability (e.g., see Lowe, 1965, 1976; Lerner, 1943, 1951, 1972). They also both considered a decent standard of living for all as a fundamental goal, and in a sense the ultimate goal to be achieved by job creation and the maintenance of the purchasing power of income. These goals thus serve as the point of departure in their analyses.

Functional Finance and Money as a Creature of the State

Lerner's insight was a fundamentally Keynesian one: the economy is likely to find itself in an unemployment equilibrium with no inherent tendency to move to full employment. Lack of effective aggregate demand requires that the federal government run a deficit to exactly offset the shortfall so that there can be aggregate balance at the full employment level of output. This is based on fundamental accounting relations as represented in the national income accounts. Keynesian unemployment is due to lack of effective demand. Deficits are not one-time injections, but may have to be continually run, permanently. The size of the deficit depends on the relation of actual and desired net saving.

Lerner's policy prescription is thus also firmly in the strong fiscal Keynesian tradition: government should run a deficit that closes the recessionary gap. It not only rejects the deficit hawk position, it also transcends the "deficit dove" stance. The confusions regarding national budget deficits and the debt are important and real. There are measurement problems, mistreatments (or non-treatments) of capital budgeting, fallacies concerning "crowding out" and the relation of deficits and interest rates (and of deficits and inflation), unfounded views on the "burden" on future generations, and more (see, e.g., Heilbroner and Bernstein, 1989; Eisner, 1994; Cavanaugh, 1996). As Bator (1962) pointed out some time ago, however, while these are all issues on which points may be scored in a debate, concentration on these areas keeps the discussion at a level which actually concedes too much. For example, it may be true that due to measurement and accounting problems, the deficit (or debt) is "not as big as it looks," but this line of attack implicitly condones the "sound money" view that smaller is inherently better.

Functional finance simply refers to an approach to public finance that sees the federal budget and the management of the national debt as *means* to economic prosperity. This notion needn't assume any particular *a priori* relation between government expenditures and revenues or *a priori* most desirable absolute or relative size of the national debt:

> 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 only to the *results* of these actions on the economy and not to any established traditional doctrine about what is sound and what is unsound. This principle of judging only by *effects* has been applied in many other fields of human activity, where it is known as the method of science opposed to scholasticism. The principle of judging fiscal measures by the way they work or function in the economy we may call *Functional Finance* ... Government should adjust its rates of expenditure and taxation such that total spending in the economy is neither more nor less than that which is sufficient to purchase the full employment level of output at current prices. If this means there is a deficit, greater borrowing, "printing money", etc., then these things in themselves are neither good nor bad, they are simply the means to the desired ends of full employment and price stability.(Lerner, 1943, p. 354)

Thus, functional finance does not say anything about what the budget should be prior to economic analysis. If it is concluded that under particular circumstances, a balanced budget describes the best means to economic prosperity, then even a balanced budget is not inconsistent with a functional approach to public finance. "Sound money" is therefore only inconsistent with functional finance if the balanced budget is seen as an end in itself, rather than as a means to an end. If a balanced budget--or surplus in order to decrease the national debt--is insisted upon, even if it may be shown to have negative economic consequences (or be impossible), then this is not functional finance (it is, actually, "dysfunctional finance"). Likewise, functional finance does not stipulate that bigger deficits are "better" or that deficits are "good," in and of themselves; it is the effects with which we are concerned.

Such an approach has an immediate result which at first glance may appear shocking or surprising, but which it would do economists and policy makers well to consider: *neither taxing nor government "borrowing" are funding operations*. Decisions concerning taxation are to be made only with regard to the economic effects in terms of the promotion of full employment, price stability, or other economic goals, and not ever because "the government needs to make money payments" (Lerner, 1943, p. 354). Likewise, "the government should borrow only if... the effects" of borrowing are desired, for example "if otherwise the rate of interest would be too low" (Lerner, 1943, p. 355).

These points of view were repeated and elaborated by Lerner in his 1951 book, *The Economics of Employment*:

> [T]axes should *never* be imposed for the sake of the tax revenues. It is true that taxation makes money available to the government, but this is not an effect of any importance because money can be made available to the government so much more easily by having some created by the Treasury. (1951, p. 131).[3]

Likewise, "borrowing" is also not a funding operation for Lerner.

What are the purposes of taxation and borrowing, if not to fund government spending? The purpose of taxation for Lerner is, first, the role it plays in endowing otherwise worthless bits of paper with value and, second, its "effect on the *public* of influencing their economic behavior"(Lerner, 1951, p. 131, original emphasis). Like taxation, borrowing is not a funding operation; rather, it is a means of managing reserves and controlling the overnight interest rate in the face of government spending and running budget deficits:

> [T]he spending of money...out of deficits keeps on increasing the stock of money [and bank reserves] and this keeps on pushing down the rate of interest. Somehow the government must *prevent* the rate of interest from being pushed down by the additions to the stock of money coming from its own expenditures....There is an obvious way of doing this. The government can *borrow back* the money it is spending (Lerner, 1951, p. 10-11).

Note here the crucial implication that "borrowing" logically *follows*, rather than *precedes*, government spending. In fact, this analysis questions the accuracy and relevance of the term "borrowing" itself for discussing government bond sales.

The role of taxation and borrowing, reserve management and interest rate maintenance will become clearer upon examination of another, much less known, Lerner article, "Money as a Creature of the State," an article which places him squarely in the Keynes-Knapp Chartalist school, and which is key to fully understanding the possibility and effectiveness of functional finance (Lerner, 1947).

The ability of the government to conduct fiscal and monetary policy according to the principles of functional finance is made possible by the fact that, as the title of Lerner's paper states, "money is a creature of the state":

> The government--which is what the state means in practice--by virtue of its power to create or destroy money by fiat and its power to take money away from people by taxation, is in a position to keep the rate of spending of the economy at the level required to fill its two great responsibilities, the prevention of depression, and the maintenance of the value of money. (Lerner, 1947, p. 314)

In adopting this view Lerner followed Keynes in accepting the main thrust of Knapp's "State Theory of Money" (Keynes, 1930, p. 4, p. 6n1; Knapp, 1924). Of course, the basic starting point can be traced back at least as far as Adam Smith, who put forward the idea that "a requirement that certain taxes should be paid in particular paper money might give that paper a certain value even if it was irredeemable" (Cannan, 1904, p. 312). The state has the power not only to tax, but to designate what will suffice to retire tax obligations, that is, what it will accept at its pay offices. By determining public receivability, the state can create a demand for otherwise worthless pieces of paper, leading to general acceptability. The state can issue this currency, and use it to purchase goods and services from the private sector:

> 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 backing of any kind. 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. But if the state is willing to accept the proposed money in the payment of taxes and other obligations to itself the trick is done. Everyone who has obligations to the state will be willing to accept the pieces of paper with which he can settle the obligations, and all other people will be willing to accept those pieces of paper because they know that taxpayers, etc., will accept them in turn. On the other hand if the state should decline to accept some kind of money in payment of obligations to itself, it is difficult to believe that it would retain much of its general acceptability...What this means is that whatever may have been the history of gold, at the present time, in a normally well-working economy, money is a creature of the state. Its general acceptability, which is its all-important attribute, stands or falls by its acceptability by the state. (Lerner, 1947, p. 313)

Thus, a variety of state powers, such as government's ability to tax, declare public receivability, create and destroy money, buy and sell bonds, and administer the prices it pays for goods and services purchased from the private sector, constitute a menu of instruments with which full employment and stability of the value of the currency may be promoted.

We have cited Smith, Knapp, and Keynes, but perhaps we would do well to give more recent examples of this view. It can be found in other "post-Keynesian" authors after Lerner (see, e.g., Kurihara, 1950, pp. 34-39; Bator, 1962).[4] But the skeptic will argue that these pronouncements from the 1950s and 1960s are of a day long gone by. It is thus may be constructive to provide the following:

> In advanced societies, the central government is in a strong position to make certain assets generally acceptable media. By its willingness to accept a designated asset in settlement of taxes and other obligations, the government makes that asset acceptable to any who have such obligations, and in turn to others who have obligations to them, and so on. (Tobin, 1998, p. 27)

Goodhart has also used the 'Cartalist' framework to argue against the Mengerian-metallist-monetarist position on optimal currency areas (Goodhart, 1997, 1998).

Mosler (1997-98) and Wray (1999) incorporate these insights into a framework that draws on Post Keynesian monetary theory and a rigorous institutional analysis of the relation of the Treasury, the Central bank, and the banking system. The central bank does not control the money supply; it does however have significant ability to determine the short term interest rate. The central bank is the lender of last resort, a necessary function for the stability of the financial system. Open market operations, government spending and lending, borrowing and taxation, all affect reserves in the banking system. Excess reserves will cause short term rates to tend to zero, while insufficient reserves will send rates toward infinity. Thus bond sales are essentially a reserve drain used to maintain a positive overnight rate of interest (interbank lending rate). Government borrowing is not to fund untaxed spending. Government spending comes first; then the government borrows what it does not tax in order to drain reserves and maintain interest rates. The national debt is "the total number of dollars that have been drained from the banking system in order to maintain the fed funds rate [overnight rate]. A more appropriate name [for the national debt] would be the Interest Rate Maintenance Account (IRMA)" (Mosler, 1995, p. 14). Since money is a creature of the state, the Government does not need to tax or borrow to spend. Taxation is not to fund government spending, it is a means of creating a demand for fiat currency, while "borrowing" is a reserve drain to support short term interest rates.

There is no problem "financing" full employment. From the functional finance perspective, the goals are full employment and price stability, not any particular relation between either government expenditure and tax revenues or the sales and purchases of government bonds. Obsession with budget balancing for its own sake makes no sense whatsoever, threatening the health of the economic system and blocking the way to full employment.

The importance of the Lernerian contributions of functional finance and money as a creature of the state are hard to overstate. There are two--in some respects related--problems, however, or areas where this framework remains incomplete by itself. One was recognized by Lerner quite early on, and he dedicated a good bit of his life to this issue. In his early versions of functional finance, inflation was seen as the result of excess aggregate demand, and therefore increasing taxation was seen as the cure. But as it became apparent that there were other sources of inflation, this simple policy for demand side inflation was no longer sufficient for managing the value of currency. Thus, Lerner dedicated himself to the study of stagflation, and the evaluation and formulation of various incomes policies, MAPs, wage-price controls, and so on.

The second issue regards the meaning of full employment. In addition to other types of inflation, Lerner also began to notice that inflation did not begin at true full employment, but well before that point. Thus, he even began to use terms like "low full employment" and "high full employment," neither of which actually meant zero involuntary unemployment (Lerner, 1951). For those who reject NAIRU and "natural rates" of unemployment, and who are interested in zero involuntary unemployment, these terms are not adequate. As Lerner admits, then, functional finance, as formulated and by itself, is not capable of attaining and maintaining zero involuntary unemployment.

There are a number of reasons why this is true. This brings us to the work of Lowe. Lowe did not believe that what he called "primary interventions" (regular fiscal and monetary policies) were adequate to bring about true full employment. He believed that these were part of the story, but not sufficient by themselves. This is because, even assuming that such policies can bring an economy to full employment, there is then the issue of *maintaining* full employment in the face of ongoing structural and technological change, by which he meant things like changes in the supply of labor and natural resources, capital- and labor-displacing technical change, and changes in the composition of final demand. This requires that we must not only look at aggregate proportionality and balance, but sectoral relations as well. And it requires that we recognize that in addition to Keynesian unemployment, we must also deal with structural unemployment, meaning unemployment due to structural and technological change.

This was the precisely the focus of Lowe's "structural analysis." We must confront issues of structural rigidity and elasticity of the production system, we must deal with issues of technological unemployment and the reserve army of labor, and we must deal with issues of sectoral relations. All of which will bring us back to issues of price stability.

Lowe's Full Employment Proposal

Lowe's structural analysis is concerned with a realistic analysis of the elasticity of the production system, the adaptability of the production system in the face of structural and technological changes, such as capital- or labor-saving technical innovations, changes in labor supply or the supply of natural resources, and changes in the composition of final demand. A viscous system will have trouble adapting quickly to such changes and thus may be characterized by bottlenecks in production, sluggish growth, inflationary pressures, significant structural, frictional, and technological unemployment, and stretches of underutilization of plant and equipment. Conversely, the more elastic the production system, the better the system is able to respond to structural and technical change without resulting in structural rigidities. Such a climate is more conducive to high employment economic growth without inflation.

Structural analysis highlights the impediments to rapid adjustment, the structural disequilibria, the disproportionalities, and the physical-technical consistency conditions for system viability (reproduction) that especially confront an economy brought to full employment by, e.g., Keynesian demand management. In neoclassical theory there is a trade-off between flexibility and reality; in structural analysis there is a trade-off between flexibility and full employment of resources.

Lowe's proposal for full employment, which he called "planned domestic colonization," is what is better known as direct job creation by government. Lowe was very skeptical about the possibility of attaining or maintaining full employment through indirect means such as stimulating private sector demand, while seeing a number of clear advantages to public employment programs:

> Unlike private investors, public investors_are not hampered by uncertainties about future demand, because they themselves determine the purpose that investment and its final output is to serve, for instance, the items that make up the infrastructure. (1988, p. 107).

Lowe saw in public works a degree of variability and flexibility not possible in the private sector, where competitive pressures legislate methods of production, the composition of output, and the types of capital equipment and natural resources utilized, and where private decisions governed by narrow economic motives may not be consistent with what is best for society as a whole (Forstater, 1998).

Lowe saw some of the major obstacles to full employment as being rooted in the technological conditions of production. Employing workers available as a result of labor-displacing technical change or increases in labor supply depends on the prior construction of real capital. But the public sector has the ability to vary the labor intensity of productive activity in ways that the private sector cannot. The public sector may choose to utilize a more labor intensive method of production that would be "inefficient" for a private firm, but which is quite reasonable from the perspective of social well-being. The public sector may also vary public sector employment between different tasks, for the purpose of altering overall capital-labor ratios or easing the utilization of certain types of capital equipment or increasing the utilization of yet other types. The spectrum of choices open include activities which approach the level of "*pure services* in the fields of health, education, and general welfare" as well as activities that do not use or make more limited use of precious natural resources and that do not pollute (1988, p. 107). A public sector employment program can also deal with the unequal geographical distribution of unemployment, which highly aggregated demand stimulus programs do not necessarily address.

Functional Finance and Full Employment...and Price Stability

Lerner himself recognized the weaknesses of functional finance for attaining true full employment, and he himself wrote of the role to be played by direct job creation by government (Lerner, 1944, pp. 315-16). Others of his time also spoke of the need to go beyond highly aggregated demand management to direct government job creation, if true full employment were the goal (see especially, Pierson, 1945, pp. 33ff). More recently, a number of proposals along these lines have appeared (see, e.g., Harvey, 1989; Collins, et al., 1994; Gordon, 1997; Mosler, 1995, 1997-98; Mitchell, 1998; Papadimitriou, Wray, and Forstater, 1998; Wray, 1999).

An important recent proposal for what Papadimitriou, et al. have termed the "job opportunity" approach put forward around the same time as Lowe's came from Hyman Minsky (1986). Like Lowe, Minsky believed full employment approaches based on "subsidizing demand" are limited, as they are likely to result in inflation, financial crisis, and serious instability (1986, p. 308). He thus sought an alternative to reliance on schemes based on stimulating private sector demand:

> The main instrument of such a policy is the creation of an infinitely elastic demand for labor at a floor or minimum wage that does not depend on long-or short-run profit expectations of business. Since only government can divorce the offering of

employment from the profitability of hiring workers, the infinitely elastic demand for labor must be created by government. (1986, p. 308).

While functional finance--again, as originally formulated and by itself--cannot provide for zero involuntary unemployment, it does provide the framework for making the question of how to pay for full employment a non-issue. Instead of government simply concerning itself with aggregate spending to close the gap between actual and potential employment, government closes the gap by hiring the unemployed. The figures look the same in the aggregate, but the composition and not simply the amount of government spending comes to the fore. Spending must be on job creation. Functional finance provides the rules for such spending, and the rules for the management of reserves and control of interest rates under such a system.

In addition, Lerner's recognition of money as a creature of the state, when combined with Lowe's employment strategy, provides a framework for price stability that draws on the ideas Benjamin Graham. Graham (1937)

outlines a program for price stability based on commodity buffer stocks. This is an idea that of course has been made familiar to economists and policy makers through the work of such eminent figures as Nicholas Kaldor and A. G. Hart, among others. But the idea here, as put forward recently by Mitchell, Mosler, Wray, and others, is that a Public Service Corps can be conceived as a buffer stock of labor. Thus, the national currency itself can be defined by the wage paid to the Public Service workers. Of course, changes in the Public Service wage will constitute a redefinition of the currency. Nevertheless, the Public Service wage may serve as a regulating anchor to which the currency is tied. Because labor is a basic commodity, employed directly and indirectly into the production of every other commodity, the job opportunity program offers a mechanism for regulating the value of the currency and thus controlling the price level.

There are a number of other reasons why the job opportunity program need not be inflationary. First, Public Service Corps workers may be engaged in public works such as infrastructure revitalization that promote private sector productivity growth. Second, such workers may be employed in activities that help reduce expensive social and environmental costs, such as environmental protection. Third, the increase in expenditure on Public Service workers will be at least partially offset by decreases in other forms of expenditure on the unemployed, or the effects of unemployment. Thus, expenditures on unemployment insurance and some other forms of general assistance should be expected to decline with the job opportunity program. There may also be expected to be savings in the form of decreased expenditures on the indirect costs of unemployment. These factors range from reductions in spending on crime prevention and prosecution, and criminal justice related to unemployment, reductions in medical bills, and savings on other social and economic costs of unemployment. Fourth, public works tend to be less inflationary than "the dole" because the former increases both supply and demand, while the latter increases only demand. Fifth, as Lowe pointed out, government has a degree of discretion not available to the private sector in choosing between alternative methods of production and alternative productive activities, which can be used to avoid bottlenecks and structural rigidities without sacrificing employment.

Conclusion

The work of Lowe and Lerner challenges us to go beyond the received wisdom of current economic theory and policy. It challenges us to reconsider the methodology of economics and its relation to public policy. But it also provides theoretical insights that may inform the work of crafting a new macroeconomics--a political macroeconomics, an institutional macroeconomics, an historical macroeconomics, a structural economics. A Lowe-Lerner synthesis also provides a framework for incorporating both monetary production and structural and technological change, and for analyzing both Keynesian and technological unemployment. Instrumental analysis and functional finance are more than oddities to be studied in history of thought journals, or worse, simply forgotten. These are approaches that must be carefully considered for their potential contribution to the formulation and implementation of effective practical policies for today and the future.

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[1] Admittedly both terms are problematic, as "instrumentalism" and "functionalism" carry baggage with them that have nothing to do with either Lowe's instrumental analysis or Lerner's functional finance.

[2] The basic principles of functional finance--though not the term--can be found in "The Economic Steering Wheel," published in 1941.

[3] The details of this and related propositions under contemporary institutional arrangements in the U.S. have been demonstrated by Bell (1998).

[4] Likewise, Samuelson, at least as late as 1961, fully and explicitly embraced functional finance (see Samuelson, 1966[1961]); A.C.L.Day is one of example of an author whose analysis of the government's reserve management and interest rate control clearly echoes the Lernerian analysis (Day, 19057). Wray (1999) has additionally documented recent Chartalist tendencies in authors such as Minsky and Boulding, among others.

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