Modeling the Economy as a Whole: An Integrative Approach

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ABSTRACT. This article integrates the social surplus approach with input-output, stock-flow consistent, social accounting, and social fabric modeling with a structure-agency methodology to develop a historically grounded model of the economy. The first two sections develop a model of the monetary structure of the social provisioning process. The third section introduces agency into the model in the form of the acting organization. The fourth section uses the social fabric approach and historical context drawn from social structures of accumulation to develop a socially embedded, historically contextu-

People have social, caring lives; they have households, parents, children, friends, colleagues, and a history; and they need to be fed, housed, clothed, married, schooled, and socially engaged. And the needed and desired goods and services are produced to sustain their socially constructed, caring lifestyle. Thus the social provisioning process is a continuous, non-accidental series of production-based, production-derived economic activities through historical time that provide “needy” individuals and households the private and state goods and services (that is, the social surplus) necessary to carry out their sequential, reoccurring, and changing social activities through time. As such then, a continuous provisioning process implies that it is something like a going concern whose core processes provide the material bases for social provisioning and are similar to a going plant and going business. This means, in part, that

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the social provisioning process is embedded in the social surplus approach. It also suggests that social provisioning is affected by historically situated social norms and cultural values, by the social activities to be supported, and by the decisions of acting persons. Hence, modeling the social provisioning process or the economy as a whole involves, first, stock-flow, social accounting consistent modeling of its productive and monetary structures and the embedding of the acting person within them. This economic model of the provisioning process is in turn linked at one end to cultural values, norms, and societal institutions and at the other end by household social activities and government services. In addition, the concatenated model is “linked” to a historical context or stage of capitalist development. Consequently, the concatenated model of the provisioning process of the economy as a whole, which is predicated on the concept of a going economy, is an integration of the social surplus approach, of input-output, stock-flow, social fabric, and social accounting consistent modeling, of historical contextualization, and of structure-agency methodology (Jo 2011; Mongiovi 2011; McDonough 2011; Hayden 2011; Olsen 2011; Lee and Jo 2011).

As a theoretical concept and methodological approach, the economy as a going concern is abstracted from its historical origins and situated historically. That is, it represents a “currently” functioning working capitalist economy complete with structures, agency, social fabric, and social activities. Hence, the structures that give the economy its form, the organizations and institutions that structurally organize and coordinate economic activity, and the agency or acting person that initiates and directs economic activity operate interdependently, contemporarily, although not necessarily synchronically. So while the structures, organizations, and institutions provide the framework for the economy to be a going concern, to continuously generate economic activities, it is the acting person that makes it happen or not—the economy does nothing on its own accord.

Therefore, to construct qua delineate the model of the economy as a whole, the first step is to descriptively model the productive structure and the surplus, which involves articulating the nature of
circular production, fixed investment goods, and scarcity, decomposing the surplus into government, consumption, and fixed investment goods and services, and linking the surplus to the provisioning of households, state, and the business enterprise. The next step involves “social accounting” modeling of these linkages in terms of money incomes vis-à-vis workers, capitalists, and the state. This requires the introduction of government expenditures, a chartalist theory of money, a banking sector, financial assets and liabilities, and finally the financial structure of the provisioning process. With this in place, the social accounting of the relationship between profits, incomes, and the surplus is delineated and then integrated with the models of the productive and financial structures to produce a descriptively consistent model of the monetary structure of the social provisioning process. This model of the provisioning process is comprised entirely of structures and hence lacks agency, lacks acting persons. Therefore, the third step is to introduce core organizations and institutions—the household, state, business enterprise, trade union, and market governance organizations—relevant to the social provisioning process and the acting persons whose agency or decisions, which take place through the organizations and institutions, direct, control, and sustain the social provisioning process. Combining these three steps creates the economic model of the provisioning process. In the penultimate section, the economic model is historically contextualized and linked to and situated in the social fabric of the society, hence creating a historically grounded, descriptively consistent model of the economy as a whole. The importance of the model for heterodox economics is discussed in the concluding section.

**Modeling the Productive Structure of the Economy and the Surplus**

The social provisioning process is founded on the social and interdependent production of goods and services; thus the structural framework of economic activity of a capitalist economy consists of its schema of production and the income flows relative to goods and services for social provisioning. The schema of production of
the economy is represented in classical-Sraffian-Leontief terms as a circular production input-output matrix of material goods combined with different types of labor power skills to produce an array of goods and services as outputs (Lowe 1976; Gehrke and Kurz 2006; Kurz 2006; Kurz and Salvadori 2000, 2005, 2006). Many of the outputs replace the goods and services used up in production, and the rest constitutes the social surplus to be used for household consumption, private fixed investment, and government services.¹

More specifically, the production schema of the economy is empirically represented in terms of a product-by-product input-output table (or matrix). The table shows that \( m \) goods and services are produced, and that \( n \) goods and services and \( z \) labor power skills are used in their production, where the former constitute the intermediate inputs where \( m > n \) and the latter constitute the labor power skills inputs where \( z > m \). Thus, letting \( g_{ij} \) represent the amount of the \( j \)th product (good or service) and \( L_{iz} \) represent the amount of the \( z \)th labor power skill to produce \( Q_i \) amount of the \( i \)th product, the production schema of the \( i \)th good or service can be represented by

\[
[\begin{array}{c}
g_{i1}, \ldots, g_{in}, L_{i1}, \ldots, L_{iz}
\end{array}] \rightarrow Q_i \text{ or } [G_i, L_i] \rightarrow Q_i
\]  

(1)

where \( G_i = (g_{i1}, \ldots, g_{in}) \) is a row vector of \( n \) intermediate inputs; and \( L_i = (L_{i1}, \ldots, L_{iz}) \) is a row vector of \( z \) labor power skills inputs. Hence, the productive structure of the economy takes the following form:

\[
[\begin{array}{c}
G_i, L_i
\end{array}] \rightarrow Q_i
\]  

\[
[\begin{array}{c}
G_m, L_m
\end{array}] \rightarrow Q_m
\]  

(2)

Representing the array of \( (G_1, \ldots, G_m) \) as \( G \) a product-by-product input-output table, the array of \( (L_1, \ldots, L_m) \) as \( L \) a labor power skills-by-product table, and the total quantity produced of each product as \( Q \), the production structure of the economy of Equation (2) is be depicted as

\[
G \oplus L \rightarrow Q
\]  

(3a)
or

\[
\begin{bmatrix}
G_{11} \\
G_{21}
\end{bmatrix} \oplus \begin{bmatrix}
L_{11} \\
L_{21}
\end{bmatrix} \rightarrow \begin{bmatrix}
Q_1 \\
Q_2
\end{bmatrix}
\]  

(3b)

where \( G \) is a \( m \times n \) flow matrix of intermediate inputs consisting of produced goods and services;

\( L \) is a \( m \times z \) flow matrix of labor power skills;

\( Q \) is a strictly positive \( m \times 1 \) column vector of output or the total social product;

\( G_{11} \) is a square \( n \times n \) matrix of intermediate inputs used in the production of \( Q_1 \), a strictly positive \( n \times 1 \) column vector of intermediate goods and services;

\( G_{21} \) is a \( m - n \times n \) matrix of intermediate inputs used in the production of \( Q_2 \), a strictly positive \( m - n \times 1 \) column vector of final goods and services for consumption, investment, and government use;

\( L_{11} \) is a \( n \times z \) matrix of labor power skills used in the production of \( Q_1 \);

\( L_{21} \) is a \( m - n \times z \) matrix of labor power skills used in the production of \( Q_2 \); and

\( \oplus \) means both intermediate and labor power inputs are needed to produce the output.

One feature of the structure of production is that \( G_{11} \rightarrow Q_1 \), meaning that all of \( Q_1 \) are produced means of production. This implies that both inputs and outputs are tied to technically specified differentiated uses, production is a circular flow, all intermediate inputs are produced inputs, and the linear production schemas (Equation (1)) for each output are all linked together on the input side. Consequently, the production of intermediate inputs is a differentiated, indecomposable hence emergent system of production that cannot be segmented, aggregated, disaggregated, reduced, or increased. A second feature of the structure of production is that the production of any \( Q_i \) must directly involve at least one \( g_{ij} \) where \( i \neq j \), which means that all of \( G_{11} \) is at least indirectly engaged in its production, making all intermediate inputs, \( Q_1 \), Sraffian basic goods.
Circular Production, Labor Power, and Scarcity

Although labor power is not an intermediate produced good and service *per se*, neither is it a non-produced input with naturally given indestructible productive capabilities and talents that exist prior to production and externally to the structure of production as original factor input. Being producible within the structure of production, goods and services used as intermediate produced means of production are not original factors; and a similar argument can be used for labor power as well. Labor power is a socially produced input in that it is created or becomes. That is, humans are acting persons that have capabilities to learn particular skills. A particular state of technical knowledge will produce and reproduce those skills or specific forms of labor power while changes in it will render some skills obsolete and create new skills. In addition, any particular labor power skill or even the overall amount of labor power can vary as a result of changes in technical knowledge. Therefore, labor power is socially constructed hence similar to, but not the same as a good or service used as an intermediate input. Hence, while labor power is not produced within the system of production like a ton of steel, it is socially created in conjunction with technical knowledge and then enters the system of production as an “input.”

With labor power, goods, and services being used as intermediate inputs co-created and co-existing internally within the structure of production, there do not exist original factors of production with naturally given indestructible capabilities and given unalterable endowments. Consequently, none of the inputs in G or L can be scarce factor inputs, as defined in mainstream economics, which implies that none of the outputs (Q) can be characterized as relatively scarce products. Therefore, production is not an activity to overcome scarcity, exchange does not arise from scarcity, and prices are not scarcity indexes. In short, under circular production, scarcity has no theoretical meaning and hence is not an organizing principle of economic inquiry in heterodox economics. Finally, the absence of original factors of production and scarcity means that with circular production, the restraints on the social provisioning process are not a
result of given quantities of scarce factor inputs located in production, but are located in the decisions and social values that affect the production of the surplus \( Q_2 \) and its distribution (McCormick 2002; De Gregori 1985, 1987; Zimmermann 1951; Levine 1977, 1978; Veblen 1908).

**Fixed Investment Goods and the Surplus**

Behind the usage of intermediate inputs and the employment of differentiated labor power skills for each product stands an array of differentiated fixed investment goods:

\[
K_{Si} = \begin{bmatrix} k_{i1}, \ldots, k_{ik} \end{bmatrix}
\]

where \( K_{Si} \) is a row vector of the stock of \( k_k \) fixed investment goods used in the production of \( Q_i \).

The fixed investment goods are used in production, but they are not used up like intermediate inputs. Rather, they are separate from the intermediate and labor power inputs (hence the colon in Equation (5)) because they are repeatedly used in the repeated production of the output. Thus, the combined array of fixed investment goods (\( K_{Si} \)), intermediate inputs (\( G_i \)), and differentiated labor power (\( L_i \)) used for the production of \( Q_i \) represents the complete stock-flow technology of the schema of production:

\[
[K_{Si}; G_i \oplus L_i] \to Q_i.
\]

The technology of the schema embodies a specific set of socially created knowledge that is an emergent whole. In particular, the fixed investment goods, intermediate inputs, and the differentiated labor power inputs are the physical manifestations of the uniquely specific social knowledge or technology used in the production of \( Q_i \). Being linked in an emergent technological arrangement for the production of \( Q_i \), the schema of production cannot be separated into parts with each identified with a certain portion of the output; its fixed investment goods cannot be viewed as separate “dated output” to be hypothetically sold in the form of joint products; and the schema itself cannot be treated as joint outputs along with \( Q_i \). Finally, from Equation (5), the entire structure of production can be represented as
where \( K_{S1} \) is a \( n \times k \) matrix of the basic sector stock of fixed investment goods used in the production of \( Q_1 \); and \( K_{S2} \) is a \( m - n \times k \) matrix of the surplus sector stock of fixed investment goods used in the production of \( Q_2 \).

The social surplus of the economy consists of the excess of total goods produced over what is used up in production:

\[
(eQ_d)^T - (eG^*)^T = Q - G^* = S^*
\]

where \( e \) is a unit vector; \( Q_d \) is \( m \times m \) diagonal matrix of the total social product; \( (eQ_d)^T = Q \) the total social product and its composition; \( G^* \) is an augmented \( G \) matrix with the \( n + 1 \) to \( m \) columns consisting of zeros; \( (eG^*)^T = G^* \) is a semi-positive \( m \times 1 \) column vector of intermediate inputs; and \( S^* \) is a semi-positive \( m \times 1 \) column vector of the goods and services that constitute the social surplus.

The social surplus includes “extra” intermediate inputs and final goods and services that go into inventory. However, since the inventory of goods and services constitutes less than plus or minus 1 percent of total economic activity, they will, for this article, be ignored by assuming that all of \( Q_1 \) is used up in production or

\[
(eQ_{d1})^T - (eG)^T = 0.
\]

This means that the surplus of the economy is essentially technically defined and consists of Sraffian non-basic goods and services:

\[
S = Q_2.
\]

Being a surplus, the goods and services of \( Q_2 \) have no technological links but rather social links. Thus, they are differentiated by their social destination or social accounts into which they flow—government goods (\( Q_{2G} \)) for the state, consumption goods (\( Q_{2C} \)) for the household, fixed investment goods (\( Q_{2I} \)) for the business enterprise:
where \( Q_{2C}, Q_{2I}, \) and \( Q_{2G} \) are semi-positive \( m \times n \) column vectors of surplus goods and services.

Since the different destinations are engaged with broadly different economic and social activities, the array and composition of the three vectors differ. In particular, \( Q_{2I} \) not only differs in its array of goods from \( Q_{2G} \) and \( Q_{2C} \), it is also a differentiated array of goods and services due to the different technologies used to produce \( Q_{2G} \) and \( Q_{2C} \), which themselves are an array of differentiated goods and services. Moreover, \( Q_{2I} \) is connected as a flow of basic sector fixed investment goods \( K_{F1} \) to the stock of basic sector fixed investment goods \( K_{S1} \) and as a flow of surplus sector fixed investment goods \( K_{F2} \) to the stock of surplus sector fixed investment goods \( K_{S1} \):

\[
Q_{2I}^T \rightarrow K_{F1} \rightarrow K_{S1}
\]  

Thus, the economy is productively linked together by the circular flow of the production of intermediate inputs and by a second circular flow via the surplus from the production of fixed investment goods to their final social destination as stocks and their subsequent use directly and/or indirectly in their own production as well as in the production of all intermediate inputs and final goods and services, which makes them “quasi-basic goods” in the Sraffian sense.

The array of differentiated goods in \( Q_{2G} \) indicates the range of social activities supported by the state and its composition indicates their relative social importance. Therefore, the state’s contribution to social provisioning is affected by the cultural values, beliefs, and norms and by agency qua decisions that compel the production of \( Q_{2G} \). But to provide the desired government services (GS), the state’s stock-flow “schema of production” draws upon government fixed investment goods and employs differently skilled workers, managers, and politicians, and combines them with \( Q_{2G} \) and government payments (GP):

\[
K_{S4}, Q_{2G}^T \oplus L_{41} \oplus GP \rightarrow GS, K_{F4} \rightarrow K_{S4}
\]
where $K_{s4}$ is a row vector of the stock of $k$ government fixed investment goods used in providing of government services (obtained through past government purchases);

$Q^T_{2G}$ is a $(1 \times m - n)$ row vector of surplus goods and services used in providing government services;

$L_{11}$ is a $m + 2$ row vector of $z$ labor power skills used in providing government services;

$GP$ is the amount of dollars of government payments, such as unemployment or social welfare benefits, to dependent individuals and households that do not have current employment hence wage income or other forms of income, and interest payments to bank and non-bank enterprises and households that hold government bonds; and

$K_{b4}$ is a row vector of the flow of $k$ government fixed investment goods into $K_{s4}$.3

Finally, the array of differentiated goods and services in $Q_{2C}$ indicates the range of social activities undertaken by households, while its composition indicates their relative social importance:

$$Q^T_{2C} \rightarrow HSA$$  \hspace{1cm} (11c)

where $Q^T_{2C}$ is a $(1 \times m - n)$ row vector of surplus goods and services that contribute to household social activities (HSA).

There are two further implications arising from $Q_2$ being produced as Sraffian non-basic goods. The first is since consumption and investment are based on current production, the former is not constrained by the latter and the latter is not based on “savings.” Secondly, as $Q_2$ is produced for the purpose of maintaining an ongoing range of particular government services and household social activities, the overall array and composition of the social surplus is the physical component of the structure of the social provisioning process. But it also represents social relationships and decisions that produced it. This clearly makes the surplus socially (not naturally) constructed hence a social surplus; and the social determination of the volume and composition of the surplus also means the social determination of all means of production—goods, services, and labor power. Thus, all the actual economic activities that constitute the social provisioning
process are manifestations of societal relations and decisions (Kurz and Salvadori 1995; Veblen 1908; Ranson 1987; Lower 1987; Lager 2006).

Social Provisioning as a Going Plant

What emerges from above is that the structure of the social provisioning process in terms of goods, services, and labor power consists, in part, of the structure of production required for the production of the social surplus (Equation (6)) and of the allocation qua contribution of the surplus to social provisioning through enabling government services and household social activities to occur and maintaining government and private sector productive capabilities (Equations (11a)–(11c)). This can be qualitatively represented in terms of a stock-flow, social accounting descriptively consistent model of the productive structure of the social provisioning process “producing” social activities (GS, HSA):

\[ \text{Basic Goods Sector} \]
\[ K_{31}: G_{11} \oplus L_{11} \rightarrow Q_{1} \]
\[ K_{32}: G_{21} \oplus L_{21} \rightarrow Q_{2} = Q_{2G} + Q_{2c} + Q_{2f} \]

\[ \text{Surplus Goods Sector} \]

\[ \text{State} \]
\[ K_{s1}: Q_{s1} \oplus G \oplus GP \rightarrow GS, K_{s1} \rightarrow K_{s1} \]

\[ \text{Household} \]
\[ Q_{sc} \rightarrow HSA \]
\[ Q_{f1} \rightarrow K_{f1-2} \rightarrow K_{s1-2} \]

As a whole, the social provisioning process acquires the structure of a going plant with unused capacity and fixed investment goods and the capability of producing additional capacity through producing fixed investment goods. So, as long as household social activities are ongoing and supported by government services, the structure of production ensures the continuous reproduction of the intermediate inputs and fixed investment goods. More specifically, the level of economic activity for the economy as a whole is determined by the decisions to produce consumption, investment, and government goods and services, that is, by effective demand. With
the “input” requirements produced and reproducible simultaneously with the goods and services necessary for the household social activities and government services to take place, the social provisioning process is potentially sustainable, and thus has an expected future; and this is what makes the provisioning process a going plant.

Modeling the Relationship Between the Social Surplus and Income

The social provisioning process takes place through linkages between two broad social accounts: (1) the money incomes of workers, capitalists, politicians, and other members of society, profits of enterprises, and government spending and (2) the social surplus, that is, consumption, investment, and government goods and services (Miller and Blair 2009; Olsen 2011). They exist because the social surplus needs to be accessed qua distributed in a manner that maintains the economy as a going concern and particularly a capitalist going concern. Consequently, class and agency-linked incomes are associated with agent-created goods and services. Managers and owners of enterprises use their business income, that is, profits, to purchase fixed investment goods produced by other enterprises, while workers use their wage incomes to purchase consumption goods and the state uses its state money to purchase government goods, both of which are also produced by capitalists.

The particular forms that the linkages take involve exchange, markets, and state money, but they are based on a set of social relationships specific to capitalism. That is, under capitalism there exists a set of property rights that vest the ownership of the produced means of production and output in a group of acting persons, either business people or the corporate enterprise; and an associated set of legal rights that validate and “empower” a hierarchical organizational structure that enables the board of directors and senior management of business enterprises to unilaterally direct their activities. These two groups of acting persons—business people/corporate enterprise and members of boards of directors/senior management—constitute the capitalist class. In addition, the state, as opposed to the political elite, owns its activities and “prop-
tery” while the elite, which also consist of acting persons, have the legal authority to direct its activities. Thus the combination of the capitalist class and the political elite constitutes the *ruling class* that owns the means of production, and output and directs the economic and political activities of enterprises and the state. In contrast, there is a second class of acting persons who engage in the production of the output but do not own it or the means of production by which it is produced and who engage in activities that provide government services; and neither can in any substantive sense direct, determine, or control the “working” activities in which they are engaged. These private and public sector employees constitute the *working class*. Finally there is a third class of acting persons who are not engaged in social provisioning activities, such as children, retirees, and others that constitutes the *dependent class*.

As noted above, it takes the entire going plant of the economy to provide for social provisioning and thus ensure the survival and continuation of households, business enterprises, and the state. This combined with the dominance of the ruling class means that the social provisioning process involves market exchange, which has four implications. First, all goods and services, $Q$, are produced for exchange, but once they are brought for their usefulness, they cease for the most part to be commodities, that is, to be offered for further exchange. Secondly, exchange is carried out in markets and involves prices hence the only analytical-theoretical starting point is a system of systematic, coordinated, and unending multiple exchanges involving state money. The third implication is that prices are state money prices denominated in the state monetary unit and hence are abstract indexes of credit qua debt obligations that are not grounded intrinsically in the commodities themselves. Finally, the last implication is that exchange, whether money for goods, services, or labor power or vice versa, arises from the need of households to gain access to a state-money monetized social provisioning process. The social relationship between the ruling class and the working and dependent classes combined with the former’s control and use of state money produces a particular symbiotic relationship that defines capitalism. That is, the social relationship
between the ruling class and the working and dependent classes is that the former owns the productive and administrative capabilities underpinning social provisioning, has the social power to direct it, and controls the access to state money that is necessary for access to social provisioning, while the latter have none of the above. This tripartite social relationship defines what is meant as capitalism as a social, political, and economic system embedding the provisioning process; and in doing so, it determines the particular structural form of the linkages between the money incomes of workers, managers, and other members of society, profits of enterprises, and state “money income” and expenditures on the social surplus (Wray 1998, 2003; Bell 2001).

Government Expenditures, State Money, and the Banking Sector

Since all outputs are commodities that are exchanged in markets, they have prices in terms of state money. Hence, letting \( \mathbf{p} = (p_1, \ldots, p_m) \) be a column vector of state money prices of all \( m \) goods and services produced in the economy, \( \mathbf{p}_1 = (p_1, \ldots, p_n) \) be a column vector of prices of intermediate inputs, and \( \mathbf{p}_2 = (p_{n+1}, \ldots, p_m) \) be a column vector of all surplus goods and services, then the total value of the total social product is \( \mathbf{Q}^\top \mathbf{p} \), \( \mathbf{Q}^\top_1 \mathbf{p}_1 \) is the total value of the intermediate inputs, \( \mathbf{Q}^\top_2 \mathbf{p}_2 \) is the total value of investment goods, \( \mathbf{Q}^\top_2 \mathbf{p}_2 \) is the total value of goods and services purchased by government, \( \mathbf{Q}^\top_2 \mathbf{p}_2 \) is the total value of consumption goods and services, and the total value of the social surplus is

\[
\mathbf{Q}^\top_2 \mathbf{p}_2 = \mathbf{Q}^\top_2 \mathbf{p}_2 + \mathbf{Q}^\top_2 \mathbf{p}_2 + \mathbf{Q}^\top_2 \mathbf{p}_2.
\]

Consequently, to gain access to social provisioning, it is necessary that all household incomes, enterprise revenues, and government expenditures be denominated in state money.

In terms of state money, government expenditures are equal to its purchases of final goods and services, to the wages and salaries of government employees and politicians, to government payments that are politically qua administratively determined income payments to the dependent class (GP_d), and to government interest
payments to business enterprises (GP_{ib}), banks (GP_{ib}), and households (GP_{ih}) for holding state financial assets, that is, government bonds:

\[
\text{GOV}_E = Q_{2G}^T p_2 + L_{i1}w + GP_d + GP_{ib} + GP_{ib} + GP_{ih} \\
= Q_{2G}^T p_2 + L_{i1}w + GP_i
\]

where \( \text{GOV}_E \) is total government expenditures; \( Q_{2G}^T p_2 \) is government expenditures on goods and services; \( w = (w_1, \ldots, w_z) \) is a column vector of state money wage rates; \( L_{i1}w \) is the government’s wage bill; and

\[
GP_i = GP_d + GP_{ib} + GP_{ib} + GP_{ih}. 
\]

Because government expenditures are credited to bank accounts in the banking system, enterprises, individuals, and households must use state money for provisioning and reproduction purposes and all enterprises must accept it and utilize the banking system for making payments and receiving revenues. In addition, since the government does not actually produce \( Q_{2G} \) or the consumption goods and services purchased by government employees, politicians, and the dependent class, government expenditures are directly and indirectly spent on outputs owned by business enterprises and show up as a component of their profits and hence in the total profits for the economy—so the more the state spends, the more profits (given tax rates) the capitalist class receives. Because profits are also generated by expenditures on fixed investment goods, total profits are equal to investment and government expenditures after taxes. This means government-generated profits are converted into financial assets through the purchase of government bonds by non-bank and bank corporate enterprises, and by households via the distribution of dividends out of profits.4

The symbiotic relationship of the state and its governing activities and the capitalist class regarding state money creates banking activities distinct from the productive activities in the basic and surplus goods sectors that are managed by capitalists, which entails
the existence of a separate banking sector. So the banking sector’s stock-flow “schema of production” draws upon a stock of fixed investment goods (\(K_{33}\)), financial assets—government bonds (\(FA_{SGB3}\)) and bank loans (\(FA_{SBL3}\)), and financial liabilities—deposit accounts of business enterprises and households (\(LB_{33}\)), utilizes intermediate inputs and labor power, income from the government bonds and loans minus the costs of demand deposits to produce qua create bank loans that are purchased by enterprises and households at the current bank interest rate:

\[
K_{33}, FA_{33}, LB_{33}: G_{31} \oplus L_{31} \rightarrow Q_{3L}
\]  

(15)

where \(K_{33}\) is a row vector of \(k\) fixed investment goods and used in the production of bank loans;

\(FA_{33} = FA_{SGB3} + FA_{SBL3}\) is the total stock of financial assets of the banking sector and is a scalar;

\(G_{31}\) is a \(m + 1\) row vector of \(n\) intermediate inputs used in the production of bank loans;

\(L_{31}\) is a \(m + 1\) row vector of \(z\) labor power skills used in the production of bank loans; and

\(Q_{3L}\) is a scalar and the amount of bank loans made to enterprises and households.

Since enterprises require bank loans for working capital on a continuous basis and for, at times, long term investment projects, they have a stock of financial liabilities. Similarly, households take out bank loans to purchase various goods and services needed for household social activities and so have a stock of financial activities. Finally, the state carries out government expenditures that are not completely compensated by taxes and so has a stock of financial liabilities called the national debt that is represented by the outstanding government bonds owned by non-bank and bank enterprises and by households.

Combining this with Equations (14) and (15), the model of the productive structure of the social provisioning process (Equation (12)) is broadened to include a qualitative-descriptive model of the financial structure of the economy with stock-flow, social accounting consistent relationships of financial assets, and liabilities that produces social activities:
SFSA Model of the Productive and Financial Structure of the Social Provisioning Process

| Basic Goods Sector | K_{S1}, FA_{S1}, LB_{S1}: G_{S1} \odot L_{S1} | \rightarrow Q_{1} |
| Surplus Goods Sector | K_{S2}, FA_{S2}, LB_{S2}: G_{S2} \odot L_{S2} | \rightarrow Q_{2} = Q_{S2} + Q_{S2} + Q_{S2} |
| Banking Sector | K_{S3}, FA_{S3}, LB_{S3}: G_{S3} \odot L_{S3} | \rightarrow Q_{3L} \rightarrow FA_{S3} |
| | | \rightarrow LB_{1,2,5} |
| State | K_{S4}, LB_{S4}: Q_{S4}^{T} \odot L_{S4} \oplus GP_{S4} | \rightarrow GS, K_{S4} \rightarrow K_{S4} |
| Household | FA_{S5}, LB_{S5}: Q_{S5}^{K} | \rightarrow HSA |
| Enterprise | \rightarrow K_{S1-3} \rightarrow K_{S1-3} |
| Financial Structural Balances | National Debt: |
| Bank Demand Deposits: | LB_{S3} = FA_{SDD1,2,5} |
| | Bank Loans: |

\[ FA_{S1} \text{ and } LB_{S1} \text{ are } n \times 1 \text{ vectors of the stock of financial assets—government bonds (FA_{SGB1}) and demand deposits (FA_{SDD1})—and liabilities—bank loans (LB_{S1})—associated with the production of intermediate inputs or basic goods;} \]
\[ FA_{S2} \text{ and } LB_{S2} \text{ are } m - n \times 1 \text{ vectors of the stock of financial assets—government bonds (FA_{SGB2}) and demand deposits (FA_{SDD2})—and liabilities—bank loans (LB_{S2})—associated with the production of the social surplus;} \]
\[ FA_{S3} \text{ and } LB_{S3} \text{ are scalars and the stock of financial assets—government bonds (FA_{SGB3}) and bank loans (FA_{SBL3})—and liabilities—demand deposits (LB_{S3})—associated with the production of bank loans;} \]
\[ LB_{S4} \text{ is a scalar and is the stock of financial liabilities (national debt) associated with providing government services; and } \]
\[ FA_{S5} \text{ and } LB_{S5} \text{ are scalars and are the stock of financial assets—government bonds (FA_{SGB5}) and demand deposits (FA_{SDD5})—and liabilities—bank loans (LB_{S5})—associated with household activities.} \]

The model shows that the national debt consists of the government bonds are that held by bank and non-bank enterprises and by household; thus an increase in the national debt arising from government expenditures exceeding taxes increases private sector and
household holdings of government bonds and hence their incomes and profits. Enterprises and households also take out bank loans (liabilities), which simultaneously create financial assets for the banking sector; but since bank loans are deposited in banks (thus creating financial assets), they also create banking sector liabilities. Therefore, an increase in bank loans increases at the same time banking sector financial assets and liabilities. In short, government decisions to spend (given tax rates) and enterprise and household decisions to take out bank loans create, drive, and change the economy’s financial structure.

**Profits, Incomes, and the Social Surplus**

To simplify the analysis, gross profits are defined as the difference between intermediate and labor input costs and revenues; thus, it includes depreciation (which is an “income” stream to the enterprise) and interest income for the banking and non-banking enterprises. So, drawing on Equations (12)–(16), gross profits in a state money economy are:

\[
\Pi_{GE} = (\mathbf{Q}^\top \mathbf{p}) - \mathbf{e} [\mathbf{Gp}_1 + \mathbf{Lw}] + \mathbf{TR}_3 - \mathbf{iDLB}_{33} - [\mathbf{G}_{31} \mathbf{p}_1 + \mathbf{L}_{31} \mathbf{w}] 
\]

(17a)

\[
\Pi_{GE} = \Pi_{GNB} + \Pi_{GB}
\]

(17b)

where \( \Pi_{GE} \) is a scalar and the total gross profits of the economy;
\( \mathbf{Q}^\top \mathbf{p} \) is the total value of the total social product;
\( \mathbf{Gp}_1 \) is the value of the intermediate inputs by product used in the production of the social product;
\( \mathbf{Lw} \) is the wage bill by product incurred in the production of the social product;
\( \mathbf{TR}_3 \) is the total interest income of the banking sector and is equal to interest income from government bonds (\( i_G \mathbf{FA}_{SGB3} \)) plus interest income from bank loans (\( i_{BP} \mathbf{FA}_{SBL3} \));
\( i_G \) is the rate of interest on government bonds;
\( i_{BP} \) is the rate of interest on past bank loans;
\( i_D \mathbf{LB}_{33} \) is the interest costs of demand deposits to the banking sector;
iD is the rate of interest on demand deposits set by the banks; 
G31 is the value of the intermediate inputs by product used in the production of the bank loans; 
L31w is the wage bill by product incurred in the production of the bank loans; 
ΠGNB is the total gross profits of the non-banking sector; and 
ΠGB is the total gross profits of the banking sector.

Because demand deposits and interest payments on bank loans are a cost and income to the banking and non-banking sectors, gross profits of the economy reduces to net profits (ΠNE), depreciation (DE), interest on government bonds (that is, government interest payments to banks and non-banks enterprises—Equation (14)), and household interest income (HII), which is the difference between the interest income made on loans to the household sector (iBFAHSBL3) minus the interest payments made on household demand deposits (iDLBH3):

\[ \Pi_{GE} = \Pi_{NE} + i_G FA_{SGB1-3} + D_E + HII = \Pi_{NE} + GP_E + D_E + HII \quad (18) \]

where \( GP_E = GP_{ib} + GP_{ib} \) is government interest payments to enterprises; and

\[ HII = i_{Bp} FA_{SBL3} - i_D LBH3. \]

Profit and income taxes (as well as other payments to the state) are necessary to maintain the demand for state money; thus with regard to profits, there is a profit tax, \( t_p \). In addition, the capitalist class allocates a percentage of its profits to dividends, and the rest is retained to purchase fixed investment goods, reduce liabilities, and acquire new government bonds. So net profits after taxes are distributed between dividends and retained earnings:

\[ \Pi_{GE}(1 - t_p) = \Pi_{GRE}(1 - t_p) + \Pi_{GDI}(1 - t_p) \quad (19a) \]

\[ \Pi_{GEat} = \Pi_{GREat} + \Pi_{Gdat} \quad (19b) \]

where \( \Pi_{GE}(1 - t_p) = \Pi_{GEat} \) is net profits after taxes;
\[ \Pi_{\text{GRE}}(1 - t_p) = \Pi_{\text{GREat}} \] is retained earnings after taxes used to purchase fixed investment goods and government bonds, and to make payments to retire their bank loans; and
\[ \Pi_{\text{GD}}(1 - t_p) = \Pi_{\text{GDat}} \] is dividends to be distributed to ruling class households.

From the above, the link between retained profits after taxes and fixed investment goods, assets, and liabilities is

\[ \Pi_{\text{GREat}} = Q^T_2 \mathbf{p}_2 + FA_{\text{BE}} + LB_{\text{BE}} \]  

(20)

where \( FA_{\text{BE}} \) is the amount of government bonds purchased by bank and non-bank enterprises; and \( LB_{\text{BE}} \) is the amount of liabilities (\( LB_{\text{SL,2}} \)) paid off by non-bank enterprises.

In addition, dividends are distributed to ruling class households, which use them to purchase government bonds (\( FA_{\text{SRC}} \)):

\[ \Pi_{\text{GDat}} = FA_{\text{SRC}}. \]  

(21)

Thus, total profits after taxes resolves into the purchase of investment goods and supporting production (\( Q^T_2 \mathbf{p}_2 + LB_{\text{BE}} \)) and the purchase of government bonds (\( FA_{\text{BE}} + FA_{\text{SRC}} \)), which implies that decisions to produce investment goods, make government expenditures, and push workers into debt are the primary factors that determine profits (Erdos and Molnar 1990).

Finally, turning to households and their incomes, working class and dependent class households have bank loans and demand deposits, but do not own government bonds. Thus they spend their entire post-tax income (which consists of wages, government payments, and interest payments on demand deposits) on consumption goods and services and paying off bank loans (\( LB_{\text{HWDC}} \)) while maintaining their demand deposits. On the other hand, the ruling class spends only its post-tax salary and interest income on consumption goods and services, paying off bank loans (\( LB_{\text{HRDC}} \)) and maintaining its demand deposits and utilizes its post-tax dividend income to purchase government bonds. Thus, drawing from Equations (14),

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(15), and (21), the link between total income and consumption goods and services is

\[
\begin{align*}
\mathbf{e}(L^\mathbf{w})(1 - t_i) + \text{GP}_d(1 - t_i) + i_D\text{FA}_{SDD5}(1 - t_i) + \text{GP}_h(1 - t_i) \\
+ \Pi_{GD}(1 - t_D)(1 - t_i) &= Q_{2c.\mathbf{p}_2} + \text{FA}_{SRC} + \text{LB}_5 \\
= (\alpha + \beta)Q_{2c.\mathbf{p}_2} + \text{FA}_{SRC} + \text{LB}_5
\end{align*}
\]

where \( \mathbf{e}(L^\mathbf{w}) \) is the total wage bill of the economy; 
\( t_i \) is an income tax; 
\( i_D\text{FA}_{SDD5} \) is interest income from demand deposits; 
\( \text{FA}_{SRC} \) is the amount of government bonds purchased by ruling class households; 
\( \text{LB}_5 \) is the amount of banking sector liabilities paid off by the households (\( \text{LB}_{HRC} + \text{LB}_{FWDC} \)); 
and 
\( \alpha (\beta) \) is the percentage of consumption goods purchased by the working and dependent (ruling) classes where \( \alpha + \beta = 1 \).

The social accounting linkages between income-profit-government spending and the surplus delineated in Equations (13), (14), and (20)–(22) implies that incomes and profits before taxes equals the value of the social surplus; that the current government deficit is equal to the value of government bonds purchased by enterprises and the ruling elite; and that taxes represent the government’s procurement of “free” labor power and goods and services for the benefit of society as a whole as interpreted by the ruling class.

Social Provisioning as a Going Business

Combining the models of the productive and financial structure of the social provisioning process (Equations (13) and (16)) and the above income-surplus linkages (Equations (18)–(22)), the stock-flow, social accounting descriptively consistent model of the monetary structure of the social provisioning process that produces social activities is the following:
Modeling the Economy as a Whole: An Integrative Approach

SFSA Model of the Monetary Structure of the Social Provisioning Process

Basic Goods Sector
K_{L1}, FA_{L1}, LB_{L1}:
G_{L1}p_1 + L_{L1}w + \Pi_1 = Q_{L1}p_1

Surplus Goods Sector
K_{L2}, FA_{L2}, LB_{L2}:
G_{L2}p_1 + L_{L2}w + \Pi_2 = Q_{L2}p_1 \rightarrow Q_{L2}p_2 + Q_{L2}p_3 + Q_{L2}p_4

Banking Sector
K_{L3}, FA_{L3}, LB_{L3}:
G_{L3}p_1 + L_{L3}w + \Pi_{L3} = TR_1 \rightarrow Q_{L3}(1 + I_3) \rightarrow FA_{L3} \rightarrow LB_{L3}, T

State
K_{L4}, LB_{L4}:
Q_{L4}p_1 + L_{L4}w + GP_t + GP_e + GP_e \rightarrow GS, K_{L4} \rightarrow K_{L4}

Household
FA_{L5}, LB_{L5}:
\Pi_{L5}(1 - \alpha) = Q_{E5}p_2 + FA_{L5} + LB_{L5} \rightarrow HSA, FA_{L5}

Enterprise
\Pi_{L6}(1 - \beta) = Q_{E6}p_2 + FA_{L6} + LB_{L6} \rightarrow K_{L6-3} \rightarrow FA_{L6-3}, LB_{L6-3}

Financial Structural Balances
National Debt: LB_{D1} = FA_{D1-3,5}
Bank Loans: FA_{D1} = LB_{D1, T}
Bank Demand Deposits: LB_{D1} = FA_{D1, T}

Current Financial Balances
Government Deficit: GOV_t - Taxes = FA_{L6} + FA_{L6}
Total Profits After Taxes: \Pi_{L6} = Q_{L6}p_2 + FA_{L6} + FA_{L6} + FA_{L6}

where \( \Pi_1 \) is a \( n \times 1 \) vector of profits for each intermediate input;
\( \Pi_2 \) is a \( m - n \times 1 \) vector of profits for each surplus product; and
\( \Pi_3 \) is a scalar of profits for financial assets.

The model clearly distinguishes between stocks and flows and accounts for the social destinations of the various flows. For example, it shows the flows of intermediate inputs into the surplus goods sector, and the flows of the various surplus goods and services into their social accounts of households, enterprises, and the state. At the same time, the model mirrors this flow of goods and services with the flow of wage, profit, and state incomes required by households, the state, and enterprises to purchase them. In this manner, the monetized social provisioning process is stock-flow, social accounting consistent and hence acquires the structure of a going business. With the provisioning process as a going plant, the flow of state money ties together market transactions and non-market activities that ensure the continuation of household activities and government services through time. The model also implicitly identifies the central decisions that drive the provisioning process: the decisions that determine the social surplus, employment, prices,
profits, household incomes, and interest rates. Because the ruling class (as opposed to the capitalist class by itself) through its acting persons has the productive and administrative capabilities and the legal rights to these decisions, it can direct the provisioning process in its own current and changing future interests. Therefore, the social provisioning process is a socially sustainable process in which each state money transaction is a manifestation and reproduction of the capitalist relationships and hence both sustains and promises a future for the ruling elite and their dependents (Bortis 1997, 2003; Lee 1998; Levine 1978; Kregel 1975).

**Agency, Organizations, and Social Provisioning**

As it is, the monetary structure model lacks agency that is acting persons. Consequently, the key variables that “drive” the provisioning process, from the social surplus and prices to interest rates and government payments, lack determination. Agency is vested in the acting person (O’Boyle 2010, 2011), which in turn is embedded in various social relationships that give meaning, direction to his/her decisions and acts. That is, the acting person has an ongoing, repeated pattern of culturally particular, ethically informed social relationships. Moreover, in a transmutable world where certain ends are not known, trust, fairness, and inter-personal comparisons along with social relationships affect every decision made by an acting person. Finally, the acting person makes decisions and takes actions to achieve something that is relationally social. Taken together, all decisions regarding prices, social surplus, interest rates, and other key variables are social, non-optimal acts taken to achieve outcomes that affect the social provisioning process and have an impact on government services and household social activities. Thus, the acting person is not a neutered individual, isolated agent, or a representative agent for the entire economy; and neither is the acting person passive, simply reactive, and unwilling to make decisions and intentionally act to change the structures of the provisioning process and the acting person itself. Rather, the acting person has the remarkable property of making the social provisioning process non-self-regulating.
For acting persons to act they need to be located in organizations and institutions, thus analytically transforming the latter into acting persons as well that make decisions and carry out intentional activities. Under capitalism, the social provisioning process has two central “acting” organizations, the state and the business enterprise, and one central “acting” institution, the household. There are additional acting organizations that, through their actions on specific variables, assist in governing economic activity and access to social provisioning, such as market governance organizations (for example, cartels, price leaders, and government regulatory commissions) and class-based organizations (for example, trade unions). Specifically, the key decisions emanating from business enterprises set prices and private sector interest rates, demand investment goods and bank loans, determine the production of consumption goods, employment, profit mark ups, and dividends and retained earnings, affect if not determine wage rates and salaries, and influence taxes on profits; decisions emanating from the state set state interest rates on government bonds and tax rates on incomes and profits, demand government goods and services, determine government payments, employment, and wages and salaries, and influence private sector interest rates; decisions emanating from households allocate their income to purchase the various consumption goods and services produced by enterprises, demand bank loans, and influence wages and salaries; decisions emanating from market governance organizations affect if not determine prices, private sector interest rates, wages and salaries, and profit mark ups; and decisions emanating from trade unions influence if not determine working conditions hence employment and wages and salaries—see Table 1.

**Modeling the Economy as a Whole**

Combining the monetary structure of the social provisioning process (Equation (23)) with acting organizations and institutions (Table 1) creates the economic model of the social provisioning process that produces social activities:
<table>
<thead>
<tr>
<th>Key Decision Variables</th>
<th>Business Enterprise</th>
<th>State</th>
<th>Household</th>
<th>Market Governance Organizations</th>
<th>Class-Based Organization—Trade Union</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Surplus</td>
<td>Demand—(Q_{21})</td>
<td>Demand—(Q_{3C})</td>
<td>Choose among—(Q_{sc})</td>
<td>Determine—(Q_{2C})</td>
<td></td>
</tr>
<tr>
<td>Bank Loans</td>
<td>Demand—LB_{12}</td>
<td>Demand—LB_{3}</td>
<td></td>
<td>Determine—LB_{1}</td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td>Determine—L_{11}, L_{21}, L_{31}</td>
<td>Determine—L_{11}</td>
<td>Determine—L_{11}, L_{21}, L_{31}, L_{41}</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prices</td>
<td>Set—(p)</td>
<td>Determine/Affect—(w)</td>
<td>Influence—(w)</td>
<td>Set/Affect—(p)</td>
<td></td>
</tr>
<tr>
<td>Wages/Salaries</td>
<td>Determine/Affect—(w)</td>
<td>Determine—(w)</td>
<td>Influence—(w)</td>
<td>Affect—(w)</td>
<td>Determine/Influence—(w)</td>
</tr>
<tr>
<td>Profit Mark-Ups (pmu)</td>
<td>Determine—pmu</td>
<td>Determine—pmu</td>
<td>Determine—pmu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dividends/Retained Earnings</td>
<td>Determine—(\Pi_{GEE}, \Pi_{GD})</td>
<td>SET—(\Pi_{GEE}, \Pi_{GD})</td>
<td>Set/Influence—(\Pi_{GEE}, \Pi_{GD})</td>
<td>Determine/Influence—(\Pi_{GEE}, \Pi_{GD})</td>
<td></td>
</tr>
<tr>
<td>Interest Rates</td>
<td>Set—(i_B, i_D)</td>
<td>Set—(i_G)</td>
<td>Set/Influence—(i_B, i_D)</td>
<td>Influence—(i_B)</td>
<td>Influence—(GP_d)</td>
</tr>
<tr>
<td>Government Payments</td>
<td>Determine—(GP_d)</td>
<td>Determine—(GP_d)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taxes</td>
<td>Influence—(t_p)</td>
<td>Determine—(t_u, t_p)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Economic Model of the Social Provisioning Process

**Structures**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Structure</th>
<th>Formulas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Goods Sector</td>
<td>( K_{BB}, FA_{BB}, LB_{BB} )</td>
<td>( G_{BB} p_1 + I_{BB} w + \Pi_{BB} = Q_{BB} p_1 )</td>
</tr>
<tr>
<td>Surplus Goods Sector</td>
<td>( K_{SG}, FA_{SG}, LB_{SG} )</td>
<td>( G_{SG} p_1 + I_{SG} w + \Pi_{SG} = Q_{SG} p_1 + Q_{SG} p_2 + Q_{SG} p_3 )</td>
</tr>
<tr>
<td>Banking Sector</td>
<td>( K_{BA}, FA_{BA}, LB_{BA} )</td>
<td>( G_{BA} p_1 + I_{BA} w + \Pi_{BA} = TR_3 \rightarrow Q_{BA} (1 + i_B) \rightarrow FA_{BA} \rightarrow LB_{BA} )</td>
</tr>
<tr>
<td>State</td>
<td>( K_{St}, FA_{St}, LB_{St} )</td>
<td>( Q_{St} p_1 + I_{St} w + \Pi_{St} = e(l^t w)(1-t) + GD_4(1-t)+I_{St}FA_{St} + GD_4(1-t)+GD_5(1-t)+ \Pi_{St} (1-t) + \Pi_{St} (1-t) = (\alpha + \beta)Q_{St} p_1 + FA_{St} + LB_{St} \rightarrow HSA, FA_{St}, LB_{St} )</td>
</tr>
<tr>
<td>Household</td>
<td>( FA_{H}, LB_{H} )</td>
<td>( Q_{H} p_1 + I_{H} w + \Pi_{H} = \Pi_{CE} (1-t) = Q_{H} p_2 + FA_{H} + LB_{H} \rightarrow K_{St-3}, FA_{St-3}, LB_{St-3} )</td>
</tr>
<tr>
<td>Financial Structural Balances</td>
<td>National Debt</td>
<td>( LB_{St} = FA_{St-3} )</td>
</tr>
<tr>
<td></td>
<td>Bank Loans</td>
<td>( FA_{St-5} = LB_{St-5} )</td>
</tr>
<tr>
<td></td>
<td>Bank Demand Deposits</td>
<td>( LB_{St} = FA_{St-15} )</td>
</tr>
<tr>
<td>Current Financial Balances</td>
<td>Government Deficit</td>
<td>( GOV_t - \text{Taxes} = FA_{RE} + FA_{RE} )</td>
</tr>
<tr>
<td></td>
<td>Total Profits after Taxes</td>
<td>( \Pi_{CE} = Q_{H} p_2 + LB_{RE} + FA_{RE} + FA_{RE} )</td>
</tr>
</tbody>
</table>

**Agency**

<table>
<thead>
<tr>
<th>Acting Organizations</th>
<th>Key Decision Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Enterprise</td>
<td>( Q_{BB}, Q_{SG}, Q_{BA}, LB_{BB}, L_{BB}, I_{BB}, L_{SG}, L_{BA}, p, w, pmu, \Pi_{BB}, \Pi_{SG}, \Pi_{BA}, I_{BB}, I_{SG}, I_{BA}, t_p )</td>
</tr>
<tr>
<td>State</td>
<td>( Q_{St}, L_{St}, w, t_{St}, I_{St}, t_p, GP_{St}, I_{St}, I_{St}, t_p )</td>
</tr>
<tr>
<td>Household</td>
<td>( Q_{H}, LB_{H}, w )</td>
</tr>
<tr>
<td>Market Governance</td>
<td>( p, w, pmu, t_{H}, I_{H} )</td>
</tr>
<tr>
<td>Trade Union</td>
<td>( L_{BB}, L_{SG}, L_{BA}, w, GP_{BB} )</td>
</tr>
</tbody>
</table>

The model descriptively links agency with key decisions qua economic variables embedded in the economic structures, thus linking agency with structures. Decisions about any economic variable, given structures, pushes the provisioning process in a particular direction and doing so generates transfactual outcomes. But those same decisions may also transform the structures (and the economic variables and acting organizations as well)—slowly most of the time but rather quickly at other times. This suggests that both structures and acting organizations are historically contingent, that is, vary as capitalism changes. Moreover, given the social nature of the acting person, the acting organization is not separable from society. As a result, the
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The economy and its economic activities are interlinked with various cultural values (such as individualism and egalitarianism) that are evaluative criteria for establishing which social activities are worthwhile and desirable; with norms and beliefs (such as property rights and the work ethic) that explain or justify particular social activities; with societal institutions (such as the legal system and specifically competition and labor laws, state money, and markets); and with technology (such as technical and social knowledge necessary for producing goods and services). These components of the social fabric affect the acting organizations and hence the pattern and organization of economic activities delivering the goods and services that make government services and household social activities possible: they give this delivery mechanism or the social provisioning process its meaning, its value (Hayden 1982, 1986, 2006, 2011).

The penultimate step to descriptively model the economy as a whole is to connect the social fabric to acting organizations—see Figure 1. The social fabric, as noted above, consists of cultural values, norms and beliefs, societal institutions, and technology; and they influence the actions of the acting organizations and institutions. In turn, the acting organizations and institutions act on the social provisioning process and social activities, and the latter has an impact on the provisioning process. Thus, in Figure 1 the model of the economy as a whole consists of the economic model of the social provisioning process (acting organizations and the provisioning mechanism) being bracketed at one end by the social fabric and at the other end by government services and household social activities. Hence, not only is the model of the economy socially encased, so is, quite clearly, the economic model of the social provisioning process. Therefore, all social provisioning qua economic activity and decisions are socially embedded, impregnated.

Since agency and structures change, capitalism and its social provisioning process change as well. In particular, the structures and agency that constitute capitalism can be relatively stable for a period of time, followed by a much shorter period of time in which they change more quickly, therefore giving rise to an ongoing stage-crisis-stage-crisis conceptual history of capitalism. Hence, the last step to descriptively model the economy as a whole is to historically contex-
### Figure 1

**Historically Grounded Model of the Economy as a Whole**

<table>
<thead>
<tr>
<th>Historical Stage of Capitalist Development</th>
<th>Ideology ↓</th>
<th>Capital-Capital Harmony, Capital-Labor Differences, State’s Role ↓</th>
<th>Ideology ↓</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economy as a Whole</td>
<td>Social Fabric</td>
<td>Acting Organizations and Institutions</td>
<td>Provisioning Mechanism</td>
</tr>
<tr>
<td>Column Delivering, Rows Receiving</td>
<td>Cultural Values, Norms, Institutions, Technology</td>
<td>Business Enterprise</td>
<td>State</td>
</tr>
<tr>
<td>Cultural Values, Norms, Institutions, Technology</td>
<td>Influence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Enterprise</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State</td>
<td>Influence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household</td>
<td>Influence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market Governance</td>
<td>Influence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade Union</td>
<td>Influence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government Services</td>
<td>Demand/ Influence</td>
<td>Demand/ Influence</td>
<td>Demand/ Influence</td>
</tr>
<tr>
<td>Household Social Activities</td>
<td>Influence</td>
<td>Influence</td>
<td>Demand/ Influence</td>
</tr>
</tbody>
</table>
tualize it (McDonough 2010, 2011). Each historical stage of capitalism
is distinguished by its ideology, by capital-capital harmony or com-
petitive relationships between business enterprises, by its class-based
capital-labor differences or nature of workplace control, and by the
state’s role in the economy. These features establish the concrete
historical form of the model of the economy as a whole and hence of
the social provisioning process. In particular, for a given stage of
capitalism, ideology informs both the social fabric and social activities;
while the capital-capital harmony specifically informs market gover-
nance, the capital-labor differences specifically informs trade unions,
the state’s role specifically informs the state, and all three generally
inform all acting organizations and institutions and the provisioning
mechanism as well. With this last step, the historically grounded,
descriptively consistent model of the economy as a whole can be
represented (see Figure 1) as a series of linked components: history
linked to the model of the economy, social fabric linked to the
economic model of the social provisioning process, agency linked to
structures, and social provisioning linked to social activities.

Conclusion

The implications of the model for heterodox economics are visible on
a number of different levels. First, it is clear from the way the model
of the economy was constructed that it draws upon different modeling
approaches and melds them into a coherent whole. In particular, it
shows that it is possible to integrate the Sraffian social surplus
approach, with the post-Keynesian emphasis on state money, finance,
and uncertainty, with the Marxist concern with classes, with the
institutionalist social fabric matrix approach, with the acting person of
social (and feminist) economics, and with the critical realist method-
ology of structures, agency, and transmutable reality and still produce
a coherent model. Thus, there is little substance to the often voiced
view that heterodox economics consists of a disparate group of
theories and approaches that cannot be brought together and inte-
grated into a single theoretical approach. Secondly, the model is
empirically grounded and draws upon modeling and data found in
flow of funds data (http://www.federalreserve.gov/apps/fof/
Default.aspx) and in input-output analysis and GNP data that is generated by governments around the world—for example, see Miller and Blair (2009) and the U.S. Department of Commerce, Bureau of Economic Analysis: http://www.bea.gov/index.htm. Moreover, the social fabric approach has been used for empirical research (Nataraajan, Elsner, and Fullwiler 2009). These two points together lead to the conclusion that this model of the economy is well-grounded and almost theoretically unremarkable, which suggests that it should be widely used by heterodox economists.

While the various components of the model are familiar to heterodox economists and empirically well-grounded, the way it is theoretically constructed makes it quite different. For example, the model makes it quite clear, with, for example, its prices as credit-debt indexes, circular production and the absence of scarcity, and the acting person, that heterodox economics is theoretically distinct from mainstream economic theory. Moreover, with agency and the provisioning process bracketed by the social fabric and social activities, the going economy as a whole cannot be reduced to simply a circuit of capital where the only interest of business enterprises and the capitalist class is to make more money. Finally, the model rejects the microeconomics-macroeconomics divide; rather, there is the economy as a whole, which has emergent interconnected components that can be studied. Because this model of the economy is empirically well-grounded, theoretically coherent, includes components well-known to heterodox economists, and rejects mainstream economic theory, it should be, in spite of its theoretical novelties, the model of choice for heterodox economists. In fact, it should be the only model of the economy as a whole that heterodox economist use.

Notes

1. To simplify the analysis, resources are omitted. However, this is not a real shortcoming since following institutional analysis, resources are a produced means of production just like other intermediate inputs. Non-produced relatively scarce inputs or factors of production simply do not exist (De Gregori 1985, 1987; Zimmermann 1951).

2. While scarcity is an organizing principle in mainstream economics, it is also a theoretically incoherent concept—see Levine (1977: 180–186). The
problem with scarcity is that it is an asocial or pre-social concept being used to organize explanations of what are inescapably social activities.

3. The banking sector and $G_{31}$ and $L_{31}$ will be introduced below.


5. In a chartalist monetary system where the state has a national debt and runs a current account deficit, banking system reserve requirements have no analytical relevance.

6. It is assumed that the government backs all demand deposits at par, thus making demand deposits equivalent to state money.

7. There are also institutions within the business enterprise and the state, such as working rules, that help facilitate the articulating and defining of objectives and goals and the making of decisions to attain them.

8. In addition, there is an international dimension to capitalism, but because of space constraints, it will not be dealt with.

References


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