



Generalized Exchange Macroeconomics

GLOSSARY



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GEM GLOSSARY

I. NOMENCLATURE

The generalization of price-mediated exchange to include optimizing behavior in the workplace as well as the marketplace reveals a significant number of heretofore ignored fundamental laws that help govern modern, specialized economies. Uncovering and applying such laws not surprisingly requires a substantial set of new terms and symbols, which are organized below to provide easy reference.

Throughout this book, coherent macro theories that restrict rational exchange to the marketplace are named *single-venue general equilibrium* (SVGE), while those that permit generalized exchange are named *two-venue general equilibrium* (TVGE). Equivalent names for the former include *dynamic stochastic general equilibrium* (DSGE), *dynamic stochastic general market equilibrium* (DSGME), and *New Neoclassical Synthesis* (NNS); *New Classical* and *Real Business Cycle* (RBC) operate wholly within the SVGE model class. Other names for the TVGE theory include *generalized-exchange modeling* and the *workplace-marketplace synthesis* (WMS); coherent *Keynesian theory* requires the TVGE framework.

II. TERMS USED IN GENERALIZED EXCHANGE MODELING

Active \mathbf{K}_j . See **Inactive \mathbf{K}_j .**

Adverse selection reflects the agent's private information about his or her cost or valuation.

Bad jobs are Class-I employment that do not pay wage rents and are found in SEV firms. (See good jobs.)

Barro Critique asserts, in coherent models of general market equilibrium, the nonexistence of plausible endogenous constraints on decision-rule optimization sufficient to suppress wage recontracting and support the existence of involuntary job loss.

Baseline workplace equilibrium occurs when simultaneous employer-employee rest points in the space of intra-firm decision rules are consistent with durable \mathbf{K}_j . Baseline workplace equilibrium accommodates considerable market dynamics.

Bundled OJB refers to employee on-the-job behavior characteristic of k th small establishments or those offering class-II jobs: $(\Delta \dot{Z}_{ik} / \dot{Z}_{ik}^m) / (\Delta W_{ik} / W^m) \leq 1$. Bundled OJB makes employer profit-seeking and employee utility-seeking consistent with payment of the market wage (W^m). The term is synonymous with **bundled workplace exchange**.

Capacity utilization measures the relative use of the capital stock ($K(t)/K^P(t)$, $K^P(t)=f(K(t))$).

Class-I jobs are characterized by the importance assigned by employees to both wages (W) relative to nonpecuniary benefits (O^N) and fixed worker characteristics (I^f), such as seniority, relative to cooperative effort on the job: $W/O^N > (\dot{Z}H)/I^f$. The remainder of the employed workforce holds **Class-II jobs**, subject to the preference restriction $O^N/W \geq I^f/(\dot{Z}H)$, where satisfaction derived from the work itself is relatively important.

Constrained nonstationary demand disturbance reflects downshifting positive growth in total nominal spending, becoming sufficiently sluggish to make (given the continuous-equilibrium MWR Channel) the medium-term timepath of LEV profits inconsistent with full employment ($U(t) = U^N(t)$). High socioeconomic-cost meta-externalities result from this class of chronic market failure.

Corrupted-priors modeling posits a characteristic of the economy and subsequently interprets relevant evidence from the perspective of that assumption as part of assessing whether the characteristic is valid.

Dominant venue is defined, with respect to a set of goods and services, as a locus of consistent decision rules, constraints, and exchange mechanisms that rationally prices that factor/product set higher than do the other existing (subordinate) venues in the economy.

Downsizing is permanent job loss that results from rational firm reductions in production capability.

DSGE model class. The Dynamic Stochastic General Equilibrium (DSGE) model class is wholly microfounded by consumers-worker utility maximization, value maximization by firms, and rational expectations while being augmented by coherent market imperfections. The coherent DSGE and coherent SVGE model classes are functionally equivalent, used interchangeably throughout the manuscript. The SVGE name is preferred because it emphasizes the critical restriction of optimizing exchange to the marketplace.

Durable \mathbf{K}_j exists if, for a period t to $t+k$ such that $k > 0$, its unchanged calibration remains consistent with rational behavior. Durable \mathbf{K}_j implies a similarly durable $\mathbf{W}_j^n = \sup \mathbf{K}_j$.

\mathbf{E} denotes, in the given work establishment, labor cooperative effort that is restricted to be in 1-1 technical correspondence with production (X), such that $E(t) = E^Q(t) + E^G(t) + E^S(t)$. E^Q_j measures the contribution from the unenhanced employee hours; E^G_j denotes the contribution from general human capital; E^S_j the contribution from firm-specific human capital.

Efficiency wage (\mathbf{W}^n) is the hourly compensation that minimizes unit labor costs, only varying from market-opportunity costs in the large-establishment venue.

Employment-volatility puzzle describes the coexistence, at business-cycle frequencies, of substantial fluctuation in jobs and relatively little change in real wages.

Equilibrium in generalized-exchange macroeconomics is understood in the modern sense of a rest period in the space of decision rules that are optimized subject to constraints. The definition is sufficiently general to accommodate some theorists' preference for expectational equilibrium, i.e., the economic outcome that does not violate agent expectations. In the GEM Project, continuous decision-rule equilibrium accommodates (short- and medium-term) market supply-demand disequilibrium, compromises the two fundamental welfare theorems, and permits the existence of policy-relevant formal macroeconomics. Walrasian equilibrium, by contrast, features the more restrictive state of general market clearing, i.e., zero incidence of excess demand, that is consistent with the full utilization of resources.

Exclusion principle. Where a producer or seller can prevent some individuals from consuming his product – generally those who do not pay – then the product can be privately supplied.

First classical postulate. See Keynes's First Classical Postulate.

First fundamental welfare theorem is the proposition that a market-competitive equilibrium is Pareto efficient.

Fixed-wage general-equilibrium (FWGE) macro modeling is associated with Clower (1965), Patinkin (1965), Leijonhufvud (1968), Barro and Grossman (1971, 1976), and others. The approach constrains market decision-rule optimization with the assumption of fixed labor pricing, demonstrating that lost production, jobs, and income motivate divergence between agents' effective and notational (SVGE) plans, inter-market spillovers, and the widespread failure of markets to clear.

Formal economic method models optimizing, price-mediated exchange organized around continuous general decision-rule equilibrium.

Full-information income (Y) is actual aggregate income (Y) adjusted for cost-effective expectations relevant to the discounted future path of Y . Central-bank behavior, notably the credibility of its real-side and nominal objectives, must inform such expectations.

Gatekeepers refer to the macroeconomic leadership who largely control the nature and focus of incentives in the academy. Gatekeepers edit the most respected journals, effectively recommend which books get published and who participates in the most significant conferences, and play a critical role in academic appointments and advancement.

Good jobs are Class-I employment that pay wage rents and are located in LEV establishments. (See bad jobs.)

Harris-Todaro transfer microfounds Lewis Transfer.

Hick-Leontief aggregation theorem. A group of goods can be treated as a single good if their relative prices remain constant.

Hold-Up (H) influences the division of rents between owners of sunk-capital stock and other claimants including, in the compact TVGE model class, labor (via wages and working conditions) and government (via taxes and regulation) occurring after sunk investments have been made. The core idea is that equity owners may rationally accept a share of the available surplus that would not have been acceptable prior to the capital purchase. In other applications, e.g., analyzing vertical integration, residual-rent claimants are generalized to include suppliers and customers.

Inactive K_j . Problematic SVGE time-separations, e.g., short, medium, and long-run behaviors of employment, become moot in two-venue macro analysis, replaced by a bimodal separation:

- Modeling the stationary behavior of employment is restricted to *inactive* (unchanging) K_j , and
- Modeling nonstationary employment is subject to *active* (changing) K_j .

More specifically, the nonstationary, continuous-equilibrium timeline of employment is sequentially partitioned between inactive and active K_j . A pleasing result is that the transition from stationary to nonstationary employment analysis is no longer an arbitrary function of time. Cyclical and trend job paths are understood as analytically separate, coexisting phenomena.

K_j represents three classes of employee reference standards – the best alternative-job (denoted by a) interpersonal (b), and intertemporal (c) – that calibrate his or her inherent preference for fair treatment by management are the elements in the set $K_j = \{W_j^a, W_j^b, W_j^c\}$. K_j is an important example of establishment-specific workplace (social) capital.

Keynes's First Classical Postulate is that the wage (W) equals the nominal value of labor's marginal product (MPL).

Keynes's Second Classical Postulate is that the wage (W) equals the nominal value of worker time (i.e., the marginal rate of substitution (MRS) between work, supporting consumption, and leisure).

Keynes's Implicit Classical Postulate is that the nominal value of labor's marginal product (MPL) equals the nominal value of worker time (MRS).

Large-establishment venue (LEV) contains production establishments that share a set of characteristics, including large size, high labor productivity, high-volume and high-speed production, high capital-to-labor ratio, high degree of work-task specialization, high share of physical and human capital that is sunk (or, in other words, high input specificity), routinized jobs, and costly, asymmetric workplace information.

Layoffs are temporary (from the perspective of the firm) reductions in jobs in response to stationary reductions in profit and may occur with or without providing affected employees with recall privileges. Given the MWR Channel, the adverse phase of stationary shifts in total aggregate nominal demand produce the requisite reduced profits.

“Lean-against-the wind” monetary policy

Lewis Transfer denotes the movement of point-of-hire homogeneous labor from SEV (low-wage) jobs to LEV (high-wage) employment, frequently accompanied by an intervening spell of unemployment.

Lucas critique argues that macroeconomic models, constructed on empirical specifications the stability of which depends on unchanged policy, have been inappropriately used in policy analysis. The poster child for his critique was the inclusion of lagged inflation in the wage equation, which Lucas asserted was irrationally adaptive and must be replaced with properly specified inflation expectations in order to adequately recognize policy changes.

Macro confidence (C^s) is a notional measure of investor/lender perceptions of the real-side macro creditability of stabilization authorities. It is monotonically increasing in the degree to which plausible future states of the macroeconomy can be characterized by known probabilities consistent with the objectives of stabilization authorities.

Market-centric macro theory. A macroeconomic theory is defined to be *market-centric* when its nonmarket adjustments are parametric.

Market myopia is theorist inability to imagine an analytic economic framework other than the market-centric SVGE model class pioneered by Walras, Arrow, and Debreu.

Market wage (W^m) is labor's expected discounted opportunity costs: $W^m = W^a$.

Meaningful wage rigidity (MWR) causes, for a large share of all employees in modern, specialized economies, nominal labor pricing to be downward inflexible over the stationary business cycle and to reflect the receipt of rents above market opportunity costs. MWR is a necessary condition for the causal link from demand disturbances to involuntary job loss.

Meta-externality. Meta-class externality exists when the total costs of a continuous equilibrium macro arrangement differ substantially from constituent micro decision-maker costs, making some set of aggregate market outcomes inefficient and generalizing A.C. Pigou's fundamental justification for government intervention. Pigou (1920, Chapter 1) forcefully argued that economists have a moral responsibility to identify adverse externalities and design government interventions that ameliorate their effects. The gap between total and decision-maker costs is contingent on macro circumstances. The socioeconomic costs of the resulting market failures can be extraordinarily large.

Minimum transactions rule implies that total employment, once restricted by MWR, is determined by labor demand; the role of labor supply is suppressed. The rule (Clower (1965)), in which the short side of the market generally determines the quantity actually traded, follows from optimizing market exchange. Given that no market participant is forced to trade more than desired, completed transactions are the minimum of demand and supply. The rule is a wholly marketplace phenomenon.

Moral hazard is rooted in private information that supports the capacity of an agent to take actions that are unobserved by the principal. See "adverse selection".

MWR Channel is rooted in continuous-equilibrium meaningful wage rigidity and provides the analytic conduit through which adverse disturbance in nominal demand rationally induce involuntary job loss, generating a powerful meta-externality and microfounding the discretionary management of aggregate demand.

Natural rate hypothesis asserts that changes in the inflation rate are predominately motivated by the changes in labor-market conditions.

New corporate form is Alfred Chandler's name for the now ubiquitous class of large bureaucratic firms that were organized in response to the large increase in production volume and through-put speed made possible by infrastructure improvements in transportation and communication beginning in the mid-19th century.

Nonstationary demand disturbances are the class of unchecked adverse deterioration in nominal demand that is sufficient, combined with the MWR Channel, to overwhelm both automatic stabilizers and standard ("lean-against the wind") central-bank intervention. NDD are associated with widespread breakdowns in confidence about the macroeconomic future, increasing expectations of systemic credit default and sharply reducing the willingness to spend and invest. By definition, extraordinary methods of aggregate-demand management, both outsized and quickly implemented, are needed to halt and reverse the contraction. The phenomenon has a less costly variant, *constrained non-stationary demand disturbance* (CNDD), that avoids unchecked spending collapse and is instead associated with sufficiently sluggish demand growth to produce chronic stagnation.

Occam's Razor advises theorists to make no more assumptions than necessary to account for the phenomena in question.

OJB refers to employee on-the-job behavior.

PC modeling. See Ptolemaic convention.

Production and nonsupervisory workers populate the largest employment class in the monthly BLS survey of private-sector establishments, accounting for 82 percent of total jobs.

Ptolemaic convention describes the implicit collusion among mainstream gatekeepers to accept, absent further justification, the presumption of market clearing. PC modeling has been for decades the greatest hindrance to the development of stabilization-relevant macroeconomics. The most interesting question is not the existence of the convention; it is instead why it is so widely tolerated.

Pure profit is the residual after all necessary production-related outlays, meeting the test of profit maximization, are deducted from firm revenues.

Quantitative easing involves the aggressive use of the central-bank balance sheet to counteract Nonstationary Demand Disturbances, typically involving large-scale asset purchases and

institutional guarantees to revive frozen credit markets and contracting aggregate nominal demand. Successful QE stabilization programs put starch into the string on which the monetary authority is pushing.

Rational Expectations inform agents' anticipations with the full range of available information, subject to cost-efficient processing. The available information critically includes the observable behavior and plans of stabilization authorities.

Rational Expectations Hypothesis informs agents' anticipations with full model information, generating an unattainable class of perfect foresight.

Reference wage (W^{r}) is the hourly compensation that satisfies the workers' axiomatic preference for fair treatment by management: $W_j^{\text{r}} = \sup_{K_j \geq W_j^{\text{a}}} W_j^{\text{m}}$. In the WMS continuous LEV equilibrium, $W_j^{\text{r}} = W_j^{\text{a}} \geq W^{\text{m}}$.

Reservation wage is the minimum labor price required for acceptance of a job offer and is denoted by W^{r} .

Satisficing. Conduct targeting satisfactory aspiration levels, which may not involve maximization.

Second Classical Postulate. See Keynes's Second Classical Postulate.

Second fundamental welfare theorem states that any efficient allocation of scarce resources is sustainable by a competitive equilibrium. Despite the apparent symmetry of the first and second welfare theorems, the former is much more general than the latter, requiring far weaker assumptions.

Single-venue general equilibrium (SVGE) is, by the nature of the marketplace, is equivalent to single-venue general market equilibrium and, in its intertemporal stabilization variant, is equivalent to DSGE (the workhorse model of mainstream formal macroeconomics). For more than a century, interrupted by the early postwar dominance of the Keynesian Neoclassical Synthesis, the SVGE model class has been the mainstream macroeconomic theory.

Small-establishment venue (SEV) contains production establishments that share a set of characteristics, including small size, low labor productivity, low capital-to-labor ratio, low-volume and low-speed production, low degree of work-task specialization, low share of physical and human capital that is sunk (or, in other words, low input specificity), and cost-effective worker monitoring.

S/M/B model class refers to the labor-market modeling of job search, applicant-vacancy matching, and the implicit bargaining over any rents generated in the matching process – a set of market processes that describe variations in voluntary (frictional) unemployment.

Stationary demand disturbances are the class of adverse shifts in total nominal spending (and their downward pressure on LEV profits and, as a result, employment and production) that are

fully corrected, after a relatively short time lapse, by automatic stabilizers augmented by standard central-bank “lean-against-the wind” intervention. Given the continuous-equilibrium MWR Channel, SDD motivate garden-variety recessions that have long been the focus of macro stabilization modeling.

Super friction is the name for the SVGE endogenous market friction capable of rationally suppressing wage recontracting. Its (admittedly elusive) existence is the motivating myth of New Keynesian macroeconomics.

SVGE Cyclical Restriction (SCR) reflects coherent SVGE theory’s requirement that recessions be incredibly mild, resulting from the inherent inability of the model class to suppress wage recontracting.

Tit-for-tat employee behavior. Unit costs of establishments restricted by costly, asymmetric workplace information can be adversely affected by a variety of employee actions, including working less cooperatively, reduced diligence, absenteeism, tardiness, theft, abuse of equipment, other forms of petty sabotage, and so on. Moreover, workers (especially those with large investments in firm-specific human capital) may belong to a union, adding openly hostile collective worker actions (such as work stoppages) to the list of ways dissatisfied employees can adversely affect their employers’ unit costs.

Two-venue general equilibrium (TVGE) is equivalent to the Workplace-Marketplace Synthesis and is always intertemporal in nature.

Two-Venue Theorem. The coexistence of continuous, optimizing economic equilibrium, providing analytic coherence, and wage market-rigidities, sufficient to support involuntary job loss, implies the existence of a dominant nonmarket equilibrium governing labor pricing.

Ultimatum game. There are two players, and the first is given a sum of money and a choice. He or she has to give some part of the money to the second player, who then also has a choice. If the offered cash is accepted, both players keep the allocated money. If rejected, each gets nothing. Any subgame-perfect SVGE equilibrium of the ultimatum game dictates that the (permissible) minimum be offered and accepted.

Unbundled OJB refers to employee on-the-job behavior characteristic of the j th large establishment offering class-I jobs: $\Delta Z_{ij}/Z_{ij}^n/(\Delta W_{ij}/W_{ij}^n) > 1$. Bundled OJB makes employer profit-seeking and employee utility-seeking consistent with the unbundled wage condition and the payment of the efficiency wage (W^n). The term is synonymous with **unbundled workplace exchange**.

Unbundled wage condition (UWC) is defined by the preference relation $\Delta Z_{ij}/Z_{ij}^n/(\Delta W_{ij}/W_{ij}^n) > 1$, which for large establishments offering class-I jobs holds throughout the range of feasible reductions from the reference wage ($W^n \leq W_j < W_{ij}^n$). Workplace-exchange relations satisfying the UWC are **unbundled**; the remaining WERs, characteristic of the k th small establishment or one offering class-II jobs, are **bundled**. ($\Delta Z_{ij}/Z_{ij}^n/(\Delta W_{ij}/W_{ij}^n) < 1$). Unbundled WERs make profit-

seeking consistent with the payment of wage rents, while bundled WERs make profit-seeking consistent with payment of W^m .

Utility for employees is consistent with the von Neuman-Morgenstern expected utility framework, extended to include an axiomatic preference for fair treatment by management.

Venue is defined as a locus of optimizing decision rules plus associated constraints and exchange mechanisms that produces consistent pricing for relevant goods and services. The primary analytic function of an economic venue is to limit aggregation.

Wage recontracting describes the critical process in which an ongoing, profit-seeking firm offers a wage reduction to an employee in lieu of losing his or her job. If the wage cut does not violate the worker's opportunity costs, rationality requires acceptance.

Wage-rent constrained market equilibrium occurs in the two-venue model as LEV labor pricing dominates marketplace wages, significantly constraining optimization of market decision rules and creating chronic, variable excess labor-market supply, which is intuitively defined as an important market failure. Labor-market failure in a multi-market model with inherent spillovers strips the general-market-equilibrium concept of much of its meaning, and the term is dropped in the workplace-marketplace synthesis.

Walrasian equilibrium, in contrast to decision-rule equilibrium, features the more restrictive state of general market clearing, i.e., zero incidence of excess demand, that is consistent with the full utilization of resources.

Workplace Exchange Relation (WER) is the locus of rational employee combinations (given $\Delta K_j=0$) of \dot{Z}_j and the hourly wage (W_j). It is viewed from the aggregating perspective of management but motivated by worker optimization, subject to differences in monitoring costs and the nature of jobs.

\dot{Z} is the operator that links the standardized labor input (E) to labor hours paid for (H), $\dot{Z}(t)=E(t)/H(t)$. \dot{Z} is the firm's measure of worker on-the-job behavior (OJB), subject to large- and small-workplace constraints (respectively): $\dot{Z}_j=\dot{Z}_j(W_j, W_j^n, W^m, \dot{Z}_j^m)$, such that if $W \in [W_j^n, W^m]$, $(\Delta \dot{Z}_j / \dot{Z}_j^n) / (\Delta W_j / W_j^n) > 1$; and $\dot{Z}_k=\dot{Z}_k(W_k, W^m, \dot{Z}_k^m)$, such that if $W_k \geq W^m$, $(\Delta \dot{Z}_k / \dot{Z}_k^m) / (\Delta W_k / W^m) < 1$.

\dot{Z}^m denotes worker OJB consistent with (technologically given) cost-effective workplace supervision.

III. SYMBOLS USED IN GENERALIZED EXCHANGE MODELING

(In general, uppercase English-alphabet symbols indicate variable levels, while lowercase indicates rates of change.)

$\mathbf{\hat{a}}$ is the nonstationary LEV capital-labor ratio (K^T_J/H^T_J).

$\mathbf{\tilde{a}}$ denotes the LEV ratio of sunk to total capital (K^S_J/K_J)

$\mathbf{\tilde{a}}$ denotes the LEV workweek (H_J/N_J).

\mathbf{B}^S represents the average productivity of labor input in the Lewis subsistence sector (Chapter 3).

\mathbf{B}^I measures average labor-productivity (posited to be constant) in the Lewis-model's industrial venue (Chapter 3).

\mathbf{C} denotes total nominal consumption spending.

\mathcal{C} represents revealed investor confidence, generated by Roger Farmer's (2010) feedback interaction with the equity prices. (See Chapter 6.)

\mathbf{C}^* is a notional measure of investor/lender perceptions of the creditability of the real-side objective of stabilization authorities. It is monotonically increasing in the degree to which the future states of the macroeconomy are plausibly consistent with the known objectives of the stabilization authority, working through unpriceable depression risk to introduce uncertainty into investor/lender decision-making.

$\hat{\mathbf{C}}$ denotes LEV firms' desired unused production capability.

\mathbf{D} represents job separations in the S/M/B model.

\mathbf{C} is LEV production capability ($C(t)=X(t)+\hat{C}(t)\leq X^P(t)$), typically decomposed into its stationary (C^V) and nonstationary (C^T) components. In the former, labor hours are temporarily adjusted to the stationary movement in nominal demand. In the latter, labor hours and capital stock are permanently adjusted to nonstationary demand movements.

\mathcal{D} denotes the LEV capital utilization rate ($\mathcal{D}=K/K^P$).

\mathbf{E} denotes, in the given work establishment, labor cooperative effort that is restricted to be in 1-1 technical correspondence with production (X), $E(t)=E^Q(t)+E^G(t)+E^S(t)$. E^Q_j measures the contribution from the unenhanced employee hours; E^G_j denotes the contribution from general human capital; E^S_j the contribution from firm-specific human capital.

f is the generic designation of a mathematical function used throughout the analysis.

\mathbf{G} denotes the ratio of the efficiency/reference wage (W^n) to labor market-opportunity costs (W^m); \mathbf{G} equals $(W^n/W^m)-1$.

\mathbf{G}^* is the upper limit on wage dispersion ($G\leq G^*$) that is consistent with durable \mathbf{K}_j .

\mathbf{G}_S is total nominal government spending.

G_r is total nominal government tax revenue.

H denotes labor hours at work.

H is new hires in the S/M/B model.

H denotes the hold-up problem, increasing in the expected cost of the problem.

I is total nominal investment spending.

J denotes the large-establishment venue (LEV).

j denotes the representative firm in the large-establishment venue.

K denotes the flow of capital-input services from the capital stock (K); κ is its rate of change.

K^P is the maximum flow of capital-input services available from the capital stock (K).

K is the capital stock, valued at original cost and equaling $K^S + K^x$; κ is the rate of change of the capital stock.

K^R is the replacement cost of the establishment's capital (K).

K^f is the resale value of the capital stock (K), which (for convenience) is always debt-financed.

K^S denotes sunk capital, which due to firm-specificity has no market-opportunity costs; as a result, K^S is always equity-financed.

K_j represents establishment-specific workplace (social) capital. Three classes of worker reference standards – the best alternative-job (denoted by a) interpersonal (b), and inter-temporal (c) – that calibrate his or her inherent preference for fair treatment by management are the elements in the set $K_j = \{W_j^a, W_j^b, W_j^c\}$. K_J denotes venue reference standards.

K^n represents inactive reference-wage calibration, during which K_j or K_J is durable.

K_j^R is the replacement cost of the establishment's sunk capital.

K denotes the large-establishment venue (LEV).

k denotes the representative firm in the small-establishment venue.

\underline{k} is the period required for the catch-up to price inflation that has already occurred in the rational periodic adjustment of nominal wages.

L represents total labor supply, i.e. the sum of persons employed or unemployed and actively seeking employment.

\dot{l} is the rate of change in labor supply.

λ is the adjustment coefficient ($0 < \lambda < 1$) used in the Early Keynesian adaptive expectations variant of the Phillips curve.

M denotes total money supply.

ω denotes the efficiency of the aggregate matching function in S/M/B modeling.

N is total employment.

Θ denotes expected duration of employment.

ϕ is the profit mark-up over variable costs in product pricing.

P is the product-price index.

P^M is its unit price of (homogeneous) material input.

P denotes working-age population.

p^e is inflation expectations (used in some Phillips-Curve formulations).

P_K is the purchase price of physical capital K_j .

p_L denotes the lagged product-price inflation rate that rationally informs periodic nominal wage setting.

p^N is the central bank's product-price inflation regime.

p^T is nonstationary (trend) product-price inflation.

Π denotes pure profits, i.e., economic rents claimed by owners of sunk capital (K^S_j) that are the firm's residual revenue after the rational payment for required inputs (labor hours, financial capital, and materials input) and taxes.

$\bar{\Pi}$ represents expected real discounted pure profits ($\bar{\Pi}$), predicated on the assumption of known probabilities with respect to future states of the macroeconomy.

\bar{r} is the rate of return required for a positive decision on an investment outlay.

q is defined as $\bar{\Pi}/K^S$, the expected rate of return on sunk capital.

\bar{C}

\check{r}^m is the market interest rate.

$\dot{\rho}$ denotes the rate of change of labor productivity.

\check{S} denotes aggregate nominal saving, such that $\check{S}(t)=Y(t)-\check{C}(t)$.

\check{S}_H is labor's share in SVGE growth accounting.

\check{S}_K is capital's share in SVGE growth accounting.

\check{T} denotes the government tax rate.

U denotes the unemployment rate.

U^N is the natural rate of unemployment, which is also the central bank's employment regime.

U^F denotes frictional unemployment.

V represents the circulation velocity of money.

V denotes a notional stock-market price index.

W represents the hourly wage.

W^m (the *market wage*) is labor's expected discounted opportunity costs: $W^m=W^a$.

W^n (the *efficiency wage*) is the hourly compensation that minimizes unit labor costs.

W^r (the *reference wage*) is the hourly compensation that satisfies the workers' axiomatic preference for fair treatment by management: $W_j^r=\sup_{K_j \geq W_j^a} W_j^a=W^m$.

W^R is the reservation wage.

\check{H} denotes (homogeneous) material input.

\check{W} denotes household nominal wealth.

X is total inflation-adjusted output.

X^P is maximum real output implied by the capital stock (K) and available labor (H).

Y denotes aggregate nominal income.

\check{Y} denotes full-information aggregate income: $\check{Y}(t)=E_t Y(t)$, where E_t is an expectations operator conditional on information, cost-effectively available at time t , that is relevant to the discounted

future path of actual income (Y). Central-bank behavior, notably the credibility of its real-side and nominal objectives, must inform such expectations.

\dot{Z} equals $E(t)/H(t)$, representing employee on-the-job behavior.

Z^m denotes worker OJB consistent with (technologically given) cost-effective workplace supervision.

IV. ACRONYMS USED IN GENERALIZED EXCHANGE MODELING

BWE: Baseline workplace equilibrium.

CNDD: Constrained nonstationary demand disturbance.

DD: Nominal demand disturbance.

DSGE: Dynamic stochastic general equilibrium.

DSGE (aka DSGME): Dynamic stochastic general market equilibrium, which is the workhorse model of mainstream formal macroeconomics and in this book is equivalent to the venerable SVGE model class.

DSGWE: Dynamic stochastic general workplace equilibrium.

EWT: Efficiency-wage theory.

FEM: Formal economic method, featuring rational economic exchange organized around continuous general equilibrium.

FWGE: Fixed-wage general-equilibrium macro modeling. (See the list of terms above.)

GME: General market equilibrium.

GWE: General workplace equilibrium.

GWET: General workplace equilibrium theory.

ILJ: Involuntarily lost jobs.

LEV: Venue comprised of large, specialized establishments offering Class-I jobs.

MPL: Marginal product of labor.

MRS: Marginal rate of substitution between time at work and time at leisure.

NDD: Unchecked nonstationary (nominal) demand disturbance.

NNS: New neoclassical synthesis, which was proposed by Goodfriend and King (1997) and quickly became the consensus macro model in the academy.

OJB: On-the-job behavior, summarized from management's aggregate perspective by \acute{Z} .

PC: Ptolemaic convention, referring to the implicit collusion among mainstream gatekeepers to accept, absent further justification, the presumption of market clearing.

RBC: Real business cycle, usually referring to the school of RBC theorists.

REH: Rational-expectations hypothesis.

SDD: Stationary (nominal) demand disturbance.

SEV: Venue comprised of establishments that are small or offer Class-II jobs.

SIR: Second Industrial Revolution.

SV: Single venue.

SVGE: Single-venue general equilibrium which, by the nature of the marketplace, is equivalent to single-venue general market equilibrium and, in its intertemporal stabilization variant, is equivalent to DSGE (the workhorse model of mainstream formal macroeconomics).

TVGE: Two-venue (workplace-marketplace) general equilibrium is equivalent to the Workplace-Marketplace Synthesis and is always intertemporal in nature, more precisely denoted by TVDGE.

TVT: The fundamental two-venue theorem.

UWC: Unbundled wage condition.

WER: Workplace Exchange Relation.

WET: Workplace equilibrium theory.

WMS: Workplace-marketplace synthesis.

WRC: Wage-rent constrained.

V. SPECIALIZED NOTATION

Preference modeling requires some specialized notation:

- The symbol \sim denotes the indifference relation: if $X_{1i} \sim X_{2i}$, then worker i is indifferent between X_1 and X_2 ;
- The symbol $>$ denotes the strict preference relation: if $X_{1i} > X_{2i}$, then worker i prefers X_1 to X_2 ; and
- The symbol \geq introduces indifference into the preference relation: if $X_{1i} \geq X_{2i}$, then X_1 is at least as good as X_2 for worker i .

The worker's preferences are rational if they are complete (for all X_1 and X_2 in his or her choice set, $X_{1i} \geq X_{2i}$ or $X_{2i} \geq X_{1i}$) and transitive (for all X_1, X_2, X_3 in the choice set, if $X_{1i} \geq X_{2i}$ and $X_{2i} \geq X_{3i}$, then $X_{1i} \geq X_{3i}$).