

At Last, A Modern Theory of Labor Supply

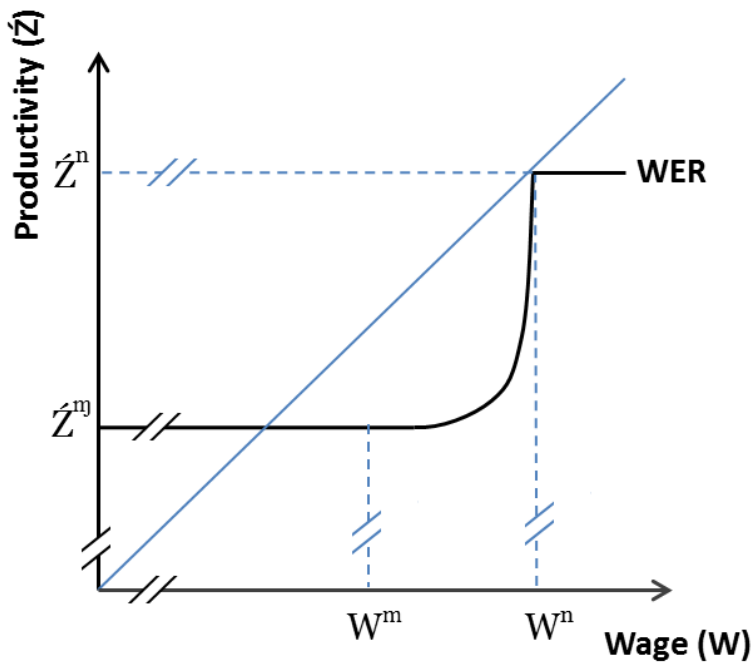
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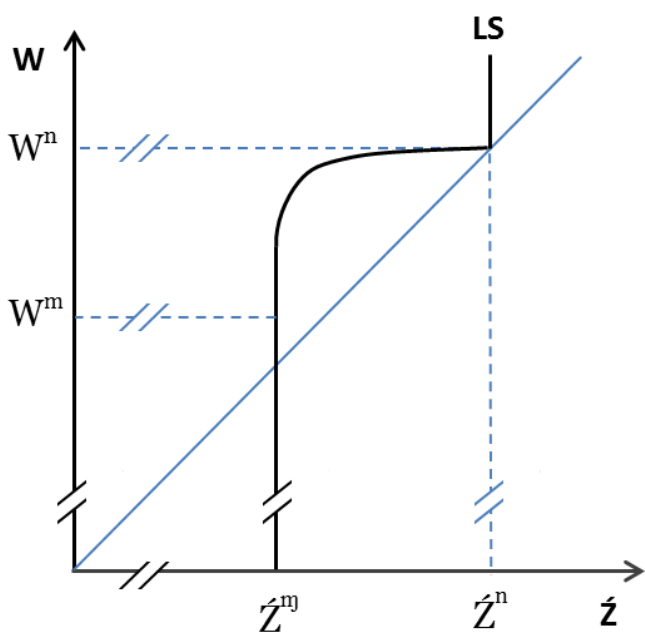
The General Theory reorients fundamental macro causation. Nominal demand disturbances inducing same-direction changes in employment implies the scrapping of Keynes's Second Classical Postulate. Any plausible model of the 1930s depression must break the beautiful $W=VMP=MRS$ analytic strangle-hold imposed by the estimable 19th century marginalists. The great difficulty here, persisting into the 21st century, is that Keynes and Keynesians of all vintages operated within a market-centric framework and therefore failed to rationally suppress wage recontracting, never microfounding $W=VMP>MRS$ that is necessary to support their policy conclusions. As Barro reminds, rejection of the Second Postulate must be justified. How can a rational worker prefer job loss to a wage cut if the latter violates neither market opportunity costs nor the disutility of labor?

The GEM Project has, at last, solved Barro's conundrum, providing the long overdue reworking of textbook labor supply and consequently demonstrating why money matters. The three-panel chart presented below illustrates the fundamental GEM labor-supply innovation. The first panel reproduces the central Workplace Exchange Relation, representing optimizing on-the-job behavior in the productivity-wage space. The WER, characteristic of complex workplaces featuring costly, asymmetric information and routinized jobs, is derived in [Chapter 2](#) from axiomatic model primitives consistent with profit- and utility-maximization. It charts the labor-supply ($\dot{Z}=E/H$) schedule relevant to large, specialized firms. The second panel transposes WER labor supply to a more typically configured two-dimensional space, i.e., labor price is on the Y-axis. The strange-looking diagram is instructive, powerfully capturing essential features of a hundred years of labor-management experience in the new corporate forms that enabled the Second Industrial Revolution. The third panel is more familiar, illustrating the textbook market labor-supply schedule in the wage-hours space. In the well-known narrative, individual firms can purchase effectively unlimited labor input of constant productivity at the market wage. The remainder of this blog compares panels B and C, another wonkish exercise.

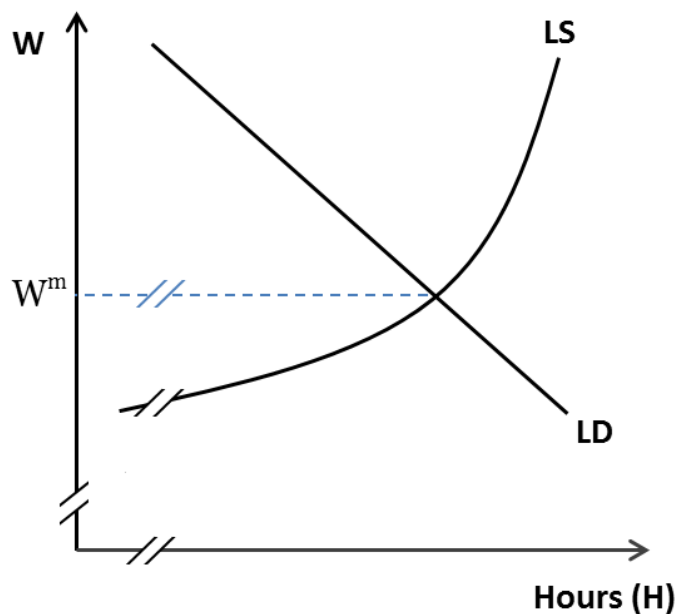
Panel A
Wage Exchange Relation (WER)



Panel B
Labor Supply in Large Firms



Panel C
Market Exchange



X-axis. The X-axis measures labor-input productivity (\hat{Z}) in Panel B and labor hours (H) in Panel C. The difference is central to how to do coherent macroeconomics in modern, highly specialized economies. The large firms of Panel B cannot simply manage labor hours. The hours and productivity components of labor input (denoted by \hat{E} , which measures cooperative effort, is defined as $\hat{E}=\hat{Z}H$, and is always in 1-1 correspondence with production) must be separately managed in firms' simultaneous pursuit of production targets and minimized unit costs. (Chapters 2, 8) Separation critically accommodates costly, asymmetric workplace information and routinized jobs in coherent modeling. The third panel's use of hours alone is understood to require cost-effective employee supervision, which is restricted to the small, owner-managed firms that populate macro textbooks.

Determinant wage. Labor supply in Panel C requires interaction with labor demand in order to yield a

determinant wage. The resulting equilibrium satisfies Keynes's First and Second Classical Postulates ($W=W^m=VMP= MRS$). By contrast, the supply schedule in Panel B determines the optimal wage on its own! Generalized-exchange modeling equilibrates the employers' efficiency wage, minimizing unit labor cost, and employees' reference wage, satisfying their axiomatic preference for equitable treatment by management. [\(Chapter 2\)](#) Panel B equilibrium captures essential properties broadly known to govern rational labor management and pricing in large establishments. (Chapter 8) Demand-independent labor pricing produces, over the business cycle, rational downward rigidity of nominal wages. It also allows firms' rational expectations of product demand to play a direct role in determining the level of employment. [\(Chapter 6\)](#) Note also that Panel B's supply-schedule discontinuity at the unit-cost-minimizing feasible wage orients baseline labor-pricing dynamics around preventing *cuts* from the efficiency/reference wage. That perspective differs substantially from Panel C's familiar two-way, flexible wage dynamics.

Chronic rents. Labor pricing produced by supply-demand interaction in Panel C is the market wage, reflecting the rational payment of workers' opportunity costs. In Panel B, employee compensation produced by equilibrating the efficiency and reference wages (W^n and W^r) reduces the role of market opportunity cost to providing the lower bound on wage range (W^m to W^n) featured in the firm's WER schedule. Large establishments rationally pay chronic wage rents, pushing many employees in highly specialized economies off their market-supply schedule. [\(Chapter 6\)](#)

Closing points. In the GEM Project, the small-firm wage is functionally equivalent to the labor-pricing of Panel C. Coexisting venues of rational firms, one populated by large establishments paying wage rents and the other by small firms paying market-opportunity costs, greatly enrich macro theory. Two-venue modeling features rationed "good" (rent-paying) jobs and plentiful "bad" (no-rent) jobs, with inter-sector flows governed by under-appreciated Harris-Todaro mechanics. [\(Chapter 3\)](#) Forced job loss rationally results from adverse demand disturbances, both temporary layoffs and permanent job downsizing. [\(Chapter 6\)](#) The latter plays a key role in the analysis of longer-term unemployment, motivating intensive labor-market price discovery during the difficult transition from rent-paying to market-paying jobs. Finally, the central role of large corporations in coherent generalized-exchange macro theory should itself be emphasized. Over the past 100 years, such firms have grown to dominate modern economies, today accounting for a substantial share of total world output, an even greater share of global trade, almost all high-productivity routinized jobs, and most involuntarily lost jobs. The production landscape of the 19th century was very different, generating labor-supply modeling that was appropriate then but, for a long time now, has badly misled economic theorists.

Blog Type: Wonkish Saint Joseph, Michigan