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Economic Letter

A Balanced-Growth View of Men's and Women's Unbalanced Labor Market Recoveries

by Carlos E.J.M. Zarazaga

Correctly gauging the output gap is particularly difficult because an economy's potential output is not directly observable.

The difference between the actual and potential output of an economy—widely known as the output gap—is so critical to central bank policy that scholars and policymakers devote a great deal of time and effort to estimating it and, accordingly, deciding how much to adjust various monetary instruments. Correctly gauging the output gap is particularly difficult because an economy's potential output is not directly observable.

The gap is sometimes derived from theoretic relationships between economic variables. For example, final output is the result of combining primary inputs—capital and labor—with a given technology.[1]

The Federal Reserve's Open Market Committee, which sets U.S. monetary policy, has said employment conditions will govern its decisions over the near future, renewing attention on the labor input component of the output gap.

Thus, determining how far labor deployment for men and for women has deviated from normal becomes especially important. This is a task fraught with measurement problems and potentially controversial methodological decisions. Balanced-growth theory—that key macroeconomic ratios tend over the long term toward constant values—provides a well-established analytical framework from which to start thinking about how to accomplish the task. An indicator of labor input dictated by that theory shows sharply deteriorating conditions for both genders during the Great Recession and a subsequent, albeit slow, improvement for men. Similar signs of an upturn are not obvious in the analogous indicator for women.

This unbalanced recovery pattern is not, however, an anomaly that necessarily needs to be corrected: Past dynamics of the same balanced-growth labor-input indicator suggest that it may, at least in part, be the result of the unavoidable reversal of extraordinarily favorable labor market conditions for women in the years prior to the Great Recession.

Labor Market Indicator

Nicholas Kaldor, a leading postwar Cambridge University economist, postulated six "facts" about economic growth, among them that labor productivity and capital grow at a sustained rate, that the ratio of capital to output has become stable over time, and that payments for capital and labor services each make up a fairly stable share of national income.

More generally, macroeconomic variables of actual economies tend to grow

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at an overall stable "balanced-growth rate"—output, consumption and investment can occasionally expand at different rates, but over time, they converge. Moreover, this balanced-growth dynamic implies that in the long run, the ratios between these variables tend to fluctuate around constant values.[2]

The balanced-growth implication also applies to the ratio between the total hours that the working-age population allocates to work and the total available hours the same population could allocate to work. More specifically, this alternative measure of labor-input utilization is the number of people at work times the average hours they work in a given period; that product is divided by the available discretionary time that the working-age population (16 and over) could have allocated to work during that same period.[3]

Discretionary time—the time each working-age member of the population can dedicate to activities of their own choosing—is roughly 100 hours a week. The commute to and from work, the physiological need to sleep, visits to the doctor and other personal care use up the remaining 68 hours, on average, in a week.

The ratio's denominator (available discretionary time) takes into account demographic growth. Thus, an unchanged ratio from one period to the next doesn't mean that job growth was nil. Rather, it implies that hours worked grew by just enough to absorb the growth of the working-age population.[4]

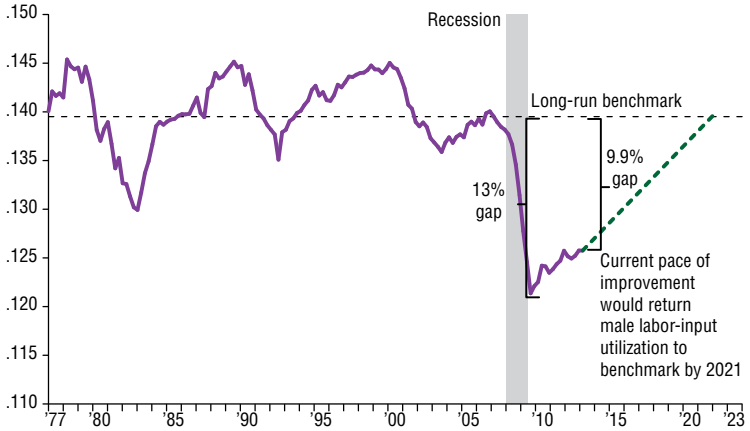
Importantly, balanced-growth theory predicts that the ratio should stabilize around a well-defined value over time. The ratio's numerator—total hours worked—should grow on average at the same rate as the denominator, leaving the ratio fluctuating cyclically up and down around a trendless, flat line.

Because this ratio measures the extent to which total hours available to work are actually used for that purpose, it can be interpreted as an indicator of the utilization rate of "installed labor-input capacity." It is analogous to installed capacity-utilization rate indicators commonly used to assess industrial sector conditions and can serve a similar purpose: to monitor labor market conditions. Labor-input utilization values above the balanced-growth benchmark value are an indication of strong labor markets, much as above-trend capacity-utilization rates are typically associated with favorable conditions in the industrial sector. The opposite also holds when labor-input utilization is below its balanced-growth benchmark value.

Although the balanced-growth implications for the labor-input utilization indicator apply only to the overall population, with certain reasonable assumptions, they can be extended to gauge U.S. labor market conditions for men and for women separately.

Chart 1 Labor Input Indicator for Men Rebounding

Fraction of available time spent at work



NOTES: Time period reflects Bureau of Labor Statistics availability of applicable employment data by gender. Data on hours at work are unavailable between 1993 and 2000 and were estimated by linear interpolation. Because hours at work fluctuate around a relatively narrow band in the short and medium term, the interpolation is unlikely to have introduced quantitatively significant differences between the resulting labor input indicator and the one that would have been obtained if the missing data had been available.

SOURCES: Bureau of Labor Statistics; U.S. Department of Defense.

Male Labor Indicator Rebound

From 1977 through the Great Recession, working-age men's time on the job accounted for about 14 percent of the total hours available to the entire working-age population (*Chart 1*).[5] The consistency of this proportion over time is exactly what balanced-growth theory predicts. Given the agreement of theory and evidence, it seems safe to assume that the dotted black line in the chart identifies average or normal market conditions for men in the U.S.

Using this benchmark, the labor market for men deteriorated sharply during the Great Recession. At the trough, men's contribution to labor-input utilization declined 13 percent below the

gender's benchmark. Almost four years later, the situation has improved but at a pace unlikely to restore labor market conditions for men any time soon to the benchmark level observed immediately before the Great Recession.

Female Labor Input Flat

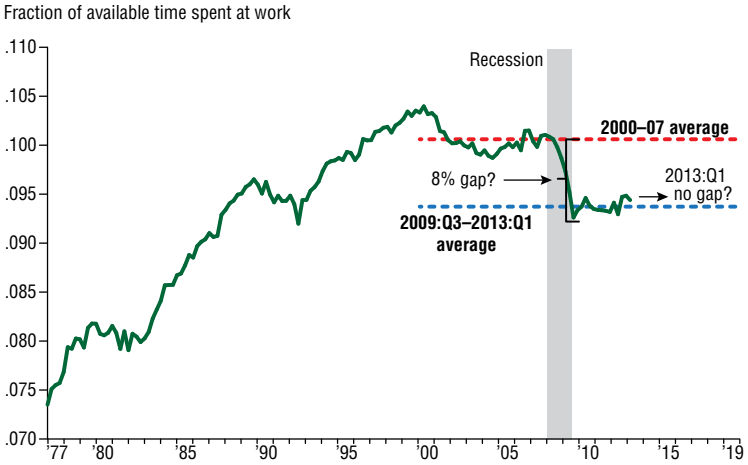
Unlike what occurred with men, the fraction of potentially available hours that women actually worked rose steadily until the end of the 20th century (*Chart 2*). This upward drift reflects a massive incorporation of female workers into the labor force beginning around World War II.

This process eventually had to end once the majority of working-age women had entered the labor force. More than 10 years have passed since the female labor-input measure peaked in second quarter 2000, perhaps indicating that this long-lasting, but ultimately temporary, source of labor market strength had played out by the dawn of the 21st century.[6] The apparent loss of dynamism of this labor market indicator also may have anticipated that women's contribution to labor-input utilization was about to stabilize around a well-defined value, consistent with the predictions of balanced-growth theory.

There still isn't a clear indication of what that value is—no one level emerges that's as distinctive as the 14 percent benchmark for men. There is, however, a hint in Chart 2 of the range of values in which that benchmark value could lie. It is bracketed by the average values observed during two periods of relative stability for the female labor-market indicator: the seven years immediately before the most recent recession, and the four years that have passed since the trough of that downturn.

The higher value of about 0.101 (10.1 percent) associated with the first of those two periods is depicted by the red dotted line in Chart 2. It would lead to the conclusion that labor market conditions for women have been rather poor since the Great Recession began. The 8 percent labor-input gap for women, from the relatively high benchmark to the trough of the contraction, isn't as severe as the 13 percent gap for men. Even so, conditions for women hadn't improved much by first quarter 2013, in contrast to the modest gains for men.

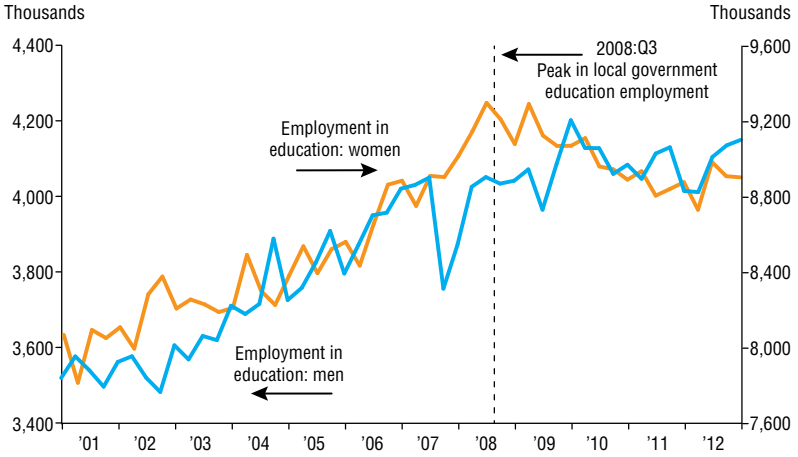
Chart 2 Labor Input Indicator for Women Is Little Changed



NOTES: Time period reflects Bureau of Labor Statistics availability of applicable employment data by gender. Data on hours at work are unavailable between 1993 and 2000 and were estimated by linear interpolation. Because hours at work fluctuate around a relatively narrow band in the short and medium term, the interpolation is unlikely to have introduced quantitatively significant differences between the resulting labor input indicator and the one that would have been obtained if the missing data had been available.

SOURCE: Bureau of Labor Statistics.

Chart 3 Postcrisis Education Jobs Fall for Women, Stabilize for Men



SOURCE: Bureau of Labor Statistics.

If the normal conditions are identified instead by the lower hypothetical value of about 0.094 (9.4 percent)—the blue dotted line in Chart 2—the labor market for women in the first quarter approached what could be considered the benchmark level. This assessment may seem implausible in light of the indicator's high levels in the decade prior to the most recent recession. That exceptionally good performance, however, may be unsustainable because of a possible link between the booming housing market during those years and the labor market for women. The local government property taxes that largely finance public education rose during the housing boom years and fed an increase in the number of teachers; the opposite occurred during the recession. Women hold a significant proportion of teaching positions, well above their roughly 50 percent share of the working-age population, and unavoidably were hurt the most amid what became a structural change in local government funding of educational services (*Chart 3*).

Thus, the end of the housing boom may have also ended an era of unusually good job market opportunities for women. At the very least, the hypothesis that long-run female labor input is closer to the low, 0.094 end of the range of benchmark values than to the high of 0.101 deserves further investigation.[7]

Possible Policy Implications

Balanced-growth theory suggests that a labor-input utilization indicator—the fraction of total available hours that working-age individuals are on the job—is a useful gauge of labor market conditions for men and women. While that indicator shows the Great Recession had a large adverse effect on the labor market for both men and women, subsequent dynamics for each gender have not followed the same pattern.

The 13 percent decline in men's contribution to labor-input utilization from what seems to be its well-defined, long-run benchmark value has given way to an exasperatingly slow recovery. This pace hints at the possibility that another eight or more years may pass before conditions for men revisit levels that could be considered normal by historical standards.

An equally clear assessment of labor market conditions for women isn't possible, reflecting the difficulty of determining a long-run value for the contribution of women to labor-input utilization. From the perspective of the high end of a range of possible values for that benchmark, conditions at the beginning of 2013 were somewhat better than those for men but hadn't significantly improved with respect to those observed during the recent recession. From the perspective of the lower end of the range, current levels of the female labor-input indicator may be closer to normal if the real estate-fed boom years and other factors overheated employment sectors historically dominated by women. Which end of the spectrum is most valid will be revealed over time.

Until then, policymakers would be well advised not to base decisions on the assumption that normal labor market conditions can be identified with those prevailing before the Great Recession. Cyclical factors (as well as demographic ones not explicitly discussed here) may have previously pushed labor force participation, especially that for women, beyond sustainable levels. In that case, policies that attempt to bring labor-input utilization rates to prerecession levels may not succeed and could, instead, create undesired inflationary pressures and/or asset bubbles that might destabilize the economy when they burst.

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Notes

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[1] For an overview of this approach and issues of implementation, see "The Challenges of Estimating Potential Output in Real Time," by Robert W. Arnold, Federal Reserve Bank of St. Louis *Review*, July/August 2009, pp. 271–90.

[2] An excellent technical exposition of the empirical and theoretical foundations of balanced-growth theory can be found in "Production, Growth and Business Cycles: Technical Appendix," by Robert G. King, Charles I. Plosser and Sergio T. Rebelo, *Computational Economics*, vol. 20, 2002, pp. 87–116.

[3] The Bureau of Labor Statistics' household survey is the source of the data in the numerator, the number of persons at work and the average hours they work. These data capture the total hours people are at work rather than the hours for which they are paid. It excludes, for example, vacation and leaves of absence for which payment is received.

[4] Discretionary time available to work can also grow as a result of technological progress that, for example, reduces the time needed to commute to and from work, but this factor is quantitatively insignificant relative to demographic influences.

[5] This figure may seem low. Recall, however, that the numerator of the ratio includes men in college as well as retired men, who typically work part time, if at all. Thus, consider a five-member household composed of two parents of the opposite sex, two young males in college and a retired grandfather. In the plausible situation in which the father is at work 40 hours a week, the grandfather 20 hours and the children 9.5 hours, the fraction of time that the men in the family devote to work would be 0.139, or 14 percent: the 69.5 hours they were at work divided by 500 hours (5 x 100) of weekly discretionary time available to the household as a whole.

[6] This suggests that the usual comparison of the vibrant labor market recovery after the pronounced recession of 1980–81 with the rather anemic one observed so far after the severe Great Recession is not entirely fair. The first of these two recoveries was helped by the extraordinary pace at which women entered the labor force, a factor that ceased to exert a beneficial influence on U.S. labor markets well before the Great Recession, as the so-called "jobless recovery" from the 2000–01 recession may indicate.

[7] More rigorous empirical grounds for this hypothesis can be found in two studies presented at the 2012 Brookings Panels on Economic Activity, "Disentangling the Channels of the 2007–2009 Recession," by James H. Stock and Mark W. Watson, and "The U.S. Employment-Population Reversal in the 2000s: Facts and Explanations," by Robert A. Moffitt.

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