

Taking Apart Taking Part: Local Labor Force Participation Rates

By Peter Barth and Dennis Heffley

Ever wonder how a rising unemployment rate can accompany an increase in total employment? Or how employment could rise while the labor force shrinks? A key to such paradoxes is the “labor force participation rate”—the percent of the population 16 years and older who are either employed or unemployed but actively seeking work. Often regarded as a measure of labor supply availability, the participation rate varies over time and even more so across geographic areas. Our analysis of town-level data for Connecticut shows that resident labor force participation rates respond to both local and area unemployment rates, along with other attributes of the town or its population.

Not So Mysterious

Like most economic paradoxes, a simultaneous increase in total employment and the unemployment rate is easily explained. Consider an economy with an age 16+ population of 100 persons: 57 employed, 3 unemployed but actively seeking work, and 40 who are not employed and not actively seeking work (i.e., not in the labor force). Using the definitions shown below, the unemployment rate is 5% ($= 3/60$) and the participation rate is 60% ($= 60/100$) because both employed persons and unemployed job-seekers count as part of the labor force. If the population is steady, but the participation rate rises to 70%, the labor force will expand from 60 to 70. If 9 of these extra 10 persons find work and one does not, the new unemployment rate will be 5.7% ($= 4/70$), despite a 15.8% gain in total employment from 57 to 66 persons. No voodoo economics here: the unemployment rate for the new members of the labor force (10%) simply exceeds the initial unemployment rate (5%), causing the overall rate to rise, even though most of the new labor force participants do find work. The example is plausible enough, and shows the importance of changes or differences in the participation rate. But how much do participation rates really vary?

Some Labor Force Definitions

Civilian Labor Force : (CLF)	members of the civilian non-institutional population 16 years and older (POP16+) who are employed (E) or unemployed (U) and actively seeking work; by definition, $CLF = E + U$.
Unemployment Rate: (U/CLF)	the fraction of the labor force unemployed, often expressed as a percentage.
Participation Rate:	the fraction of the civilian non-institutional population aged 16+ in the labor force ($CLF / POP16+$), often expressed as a percentage.

Rates Vary Over Time...

Labor force participation rates vary over time for many reasons, including changes in the age mix of the population, race and ethnicity, household structure, educational attainment, disabilities, mobility, and language barriers. Participation rates also depend on the availability of jobs and the perceived chance of landing one.

If high unemployment rates signal job scarcity, high search costs, and a low probability of success, some unemployed persons will rationally abandon their job search. If so, they no longer get counted as part of the labor force—they are neither “employed” nor “unemployed” in the official statistics. This “discouraged worker effect” often emerges in recessions and makes unemployment look milder than it in fact is. Some refer to this as “hidden unemployment.”

But the effect of the unemployment rate on labor force participation is not so simple. For example, if high unemployment causes some household members who normally shun the labor market to seek employment because others in the household suffer or anticipate job losses, this “added worker effect” could partially offset or even outweigh the discouraged worker effect. Empirical studies of labor markets over the business cycle, however, tend to find that the discouraged worker effect dominates, leading to a net negative relationship between the labor force participation rate and the unemployment rate.

...And By Location

Discouraged worker and added worker effects also crop up in cross-sectional data. Locally high unemployment rates might discourage potential job seekers, reducing local participation rates, especially where residents’ lack of mobility limits their access to other, healthier labor markets. (Interestingly, high mobility can also reduce local participation rates if active job-seekers move away, leaving behind a disproportionate number of persons not seeking work.) If the discouraged worker effect swamps the added worker effect in cross-sectional data, we again should see a net negative relationship between the participation rate and the unemployment rate.

Our cross-sectional study of labor force participation in Connecticut’s 169 towns began with a simple scatter plot of the March 2004 unemployment rate by place of residence, as reported by the Connecticut Department of Labor (DOL), and the estimated labor force participation rate for each town. To estimate the participation rates we used DOL figures for the labor force (employed plus unemployed seeking work) in each town in March 2004, coupled with estimates of the 2004 age 16+ population, based on Census 2000 figures and town-specific rates of population growth between 1990 and 2000. Both variables are listed in the centerfold (pages 10-11). The scatter plot revealed no clear link between the participation rate and the unemployment rate in each town, but this could mean several things. First, added worker and discouraged worker effects might be negligible.

Second, added worker and discouraged worker effects might simply offset one another. Finally, factors other than the unemployment rate might affect participation rates, but these additional factors are ignored in a simple scatter plot of the two variables. The question requires a more complete study of why participation rates vary.

Sources of Variation

Connecticut's mix of towns offers an interesting setting for studying the determinants of labor force participation. As shown in the centerfold, participation rates vary considerably across the state's 169 towns, from a low of 47.9% in Southbury, the site of a large retirement community, to a high of 87.9% in rural Kent. The 169-town average is 68.6%. [Note: In an earlier (Winter 2002) centerfold, we used Census 2000 data to calculate labor force participation rates. Those rates were systematically lower than the ones reported in this issue, because there we used *total* population, rather than the age 16+ population, as the base.]

The table below summarizes the results of a regression analysis using data for all 169 towns to relate local labor force participation rates to twelve factors that could influence participation. This method estimates the effect of each factor on participation rates, controlling for the other possible sources of variation. For each factor, the table gives the minimum, average, and maximum values across the 169 towns, the estimated effect (positive or negative) on the labor force participation rate, and the statistical significance (or reliability) of each estimate. Jointly, the twelve variables account for 35% of the variation in local labor force participation rates. The six most significant factors(*) account for nearly all of that amount.

To see if the discouraged worker effect dominates the added worker effect, or vice versa, we included the town's own unemployment rate and the average unemployment rate in adjacent towns as explanatory variables. Both coefficients are highly significant and negative, suggesting that higher unemployment rates, locally and nearby, are associated with a lower participation rate, controlling for other factors. The net discouraged worker result is consistent with many other studies of labor force participation.

The local "real wage," as measured by the average wage in the town's labor market area divided by the town's median house value, is positively related to the labor force participation rate—labor supply rises with the expected real wage—but the result is statistically weak, as is the negative estimated effect of distance from the town to the labor market center. The percentage of households with no access to a vehicle also has a negative, but somewhat more significant, effect on participation.

The expected effect of town educational attainment is ambiguous: higher education generally boosts the rewards of work, but a higher percentage of college educated persons also might reduce the need for multiple income earners within households. Our estimates show a net effect that is negative, but not very significant. Other factors with

even lower levels of significance were the percentage of the population 65 years or older and the percentage of disabled persons in the 21-64 age group.

Socioeconomic factors apparently play an important role in labor force participation: percent non-white and percent with a non-English home language are negatively related to labor force participation. These statistically significant results are consistent with job discrimination or other labor market barriers that discourage participation by minorities and non-English speakers.

Two final attributes are positively associated with labor force participation in Connecticut towns: community stability, as measured by the percentage of households living in the same housing unit for the last five years, and the percentage of female-headed households with no husband present. Both effects are quite significant. The positive effect of community stability on participation rates seems sensible enough. But the positive effect of female-headed households, often viewed as a mark of less stable communities, bears explaining. Single-parent households clearly face obstacles to labor force participation, but the absence of another parent also creates a need to secure a job or perhaps public support. In either case, the single parent will likely be counted in the labor force. The employed single-parent is certainly part of the labor force, but so is the unemployed single parent who may be required to seek employment to qualify for public support. Mid-1990s welfare reforms in many states substantially tightened work requirements and limited maximum periods of public support.

Go Forth and...Participate

About this time each year, high schools and colleges offer a new crop of potential workers to the labor force. How well those students fare in their search for a job, and how they affect the labor markets they enter, varies greatly depending on personal skills, the geographic scope of their search, local labor market conditions within that search area, and the strength of the larger economy. As we've shown, labor force participation is a complex process, even at the community level. Labor supply decisions of individuals, particularly the young, are even more complex and a lot less predictable. Just ask any (sufficiently old) parent.

Town Attributes Affect Labor Force Participation Rates

	169 Connecticut Towns:			Estimated Effect on LFPR	Statistical Significance
	min	avg	max		
*Town unemployment rate (UR)	1.70	4.48	10.84	negative	high
*Average UR in adjacent towns	2.05	4.48	6.97	negative	high
Real wage (LMA wage/median house value)	0.09	0.25	0.47	positive	low
Distance to central town of LMA	0.00	14.59	36.00	negative	low
Percent with no vehicle	0.70	5.16	36.10	negative	moderate
Percent adults with BA or higher	10.20	33.72	74.40	negative	low
Percent age 65+	6.04	13.41	26.07	negative	none
Percent age 21-64 disabled	4.84	13.94	31.14	positive	none
*Percent non-white	1.31	8.26	72.28	negative	high
*Percent with non-English home language	2.86	10.78	46.54	negative	high
*Percent female-headed households	4.25	8.87	29.64	positive	high
*Percent in same housing unit 5+ years	40.49	62.58	76.00	positive	high

Source: *The Connecticut Economy* based on data from the Connecticut Department of Labor and the U.S. Bureau of the Census.