

U.S. Macro Forecasting: A Primer

We are interested in creating a format to allow us to imagine possible consistent future paths for key barometers of the U.S. economy. We care about real flows of output and income. We care about job growth and the level of unemployment. We care about the overall price level, and its rate of change, the inflation rate.

We select three macroeconomic barometers. Each barometer will afford us a basic sense of developments in the aforementioned key areas. The barometers:

Y, real GDP: the flow of real goods and services

U, unemployment: the % of those in the working age population who self-identify as in the labor force, and who self-identify as unemployed.

π , inflation: the rate of change of the overall price level.

(Note: *The Big Three Barometers*, provides a discussion of the three measures)

Long Term Sustainable Trajectories

One approach to forecasting? Conjecture about input fundamentals that suggest a likely set of trend trajectories. Then delve into how contemporaneous forces might alter near term economic performance. To begin, sustainable output and income advances reflect productivity and labor force trends:

Sustainable Output Growth = Long-term productivity growth + long term labor force trajectory.

Sustainable Employment Trajectories

Healthy jobs growth is considered the second touchstone of a successful economy. Unlike advances in labor productivity, however, it is possible *to have too much of this good thing*. Rapid job growth, laid alongside very low unemployment, invites upward pressures on wages, and potentially prices. Accelerating inflation, the 1960s-1970s taught us, can be very destabilizing. Consequently, we acknowledge that we want strong jobs growth, but not excessively strong gains.

Imagine A World With A Zero Unemployment Rate: How Fast Can Employment Grow?

We can begin to think about a trajectory for job growth by ignoring the issue of *slack in the system*. Suppose, on December 31st of 2017, everyone that wants a job has a job. In other words, everyone who wants a job has looked for one—they are in the workforce—and they have found one, thus the unemployment rate is zero. How many net new jobs can we hope to create in 2018? That will depend upon the growth of the working age population, over the next 12 months. It will also depend upon attitude changes about working, for the population at large—will some decide to leave the labor force, will others decide to join.

Imagine a nation with 100 million people of working age, 16-years and older. Suppose that 60% of the working age population, 60 million, had jobs. The rest, 40% of the total are full time students, or

disabled, or retired, or simply not interested in working. Close of business 2017, we would say that the labor force participation rate was 60%. As we noted above, we are imagining a world in which all that want to be employed—the definition of the labor force—are employed. We therefore have 100% of the labor force, 60 million, employed. Again zero percent are unemployed.

Now we assert that the working age population will grow by 1.5%, 1.5 million people. We further assert that labor force participation will remain at 60%. Thus, the labor force will rise by 0.6×1.5 million, or 900,000. Finally, if we assert that unemployment remains at 0%, then employment will rise by 900,000 as well.

The point of the exercise? Long run sustainable employment growth assumes we have full employment, and depends upon growth in the working age population and the population's participation in the labor force—the labor force participation rate.

Introducing Labor Market Slack: The U3 jobless rate, underemployment, prime age participation

In early 2000, at the turn of the millennium, the unemployment rate was below 4%, around 3 million workers groused about being stuck in part-time jobs, and participation in the labor force, by the working age population, was at an all time high. A forecaster, at that moment, would have been wise to assert that the labor force was quite tight, and that sustainable jobs growth, over the next few years, would be capped by growth in the working age population.

In contrast, in late 2009, the unemployment rate touched 10%, nearly 9 million Americans complained about being stuck working part-time, and millions of workers had dropped out of the labor force, convinced that there were no jobs to be had. In such circumstances a forecaster would recognize that there was at least the potential for a multiyear period of job growth *well in excess* of the growth rate for the labor force. Stronger than long run trend job gains, are possible given the opportunity to lower the jobless rate and to pull people back into the labor force.

Where do we stand, Q4:2019, versus Q4:2017?

Over the two years ending in 2019, the jobless rate fell from 4.1% to 3.5%, suggesting little opportunity for material further declines. Job growth, in such circumstances depends critically on growth in the working age population and changes in the participation rate of said population. What constituted a sustainable path for job growth, in the eyes of forecasters on the eve of 2017? Bureau of Labor Statistics economists expected that the working age population would grow by 1%. They warned, however, that aging baby boomers, the largest age cohort in the U.S. population, were entering retirement age. Absent a meaningful rise for participation rates for prime age workers, the overall participation rate was destined to fall.

Over the past two years, however, a big change occurred. A sharp drop in net immigration has resulted in two years of much slower than expected growth for the working age population:

	population gains	civilian working age	annual revisions	(thousands)	asian + hispanic as % of total	population growth original (jan to jan)	population growth revised (jan to jan)
	total	Asian	hispanic	asian + hispanic			
2019	-811	-273	-323	-596	73%	0.8%	0.5%
2018	-800	-224	-275	-499	62%	0.8%	0.5%

Suppose we are trying to forecast growth in the labor force over the next four years.

If we now believe the population is growing at something like 0.5% per year, instead of 1% per year, we obviously have to lower our sights for jobs growth.

For 2019:Q4, working age population is 259.5 million. We must decide on a forecast for growth in the working age population. Then we need to forecast how many of these potential workers actually will be in the labor force. Finally, we need to project how many of those in the labor force have jobs. Consider this copy of an attached spreadsheet:

	2017:Q4	2019:Q4	2024:Q4
w.a. pop.	256.9	259.5	266
% Δ pop/yr		0.5%	0.5%
LFPR	62.7%	63.2%	63.2%
labor force (L.F.)	161.1	164.0	168.1
L.F. annualized, % Δ		0.9%	0.5%
U3 rate	4.1%	3.5%	3.5%
employment, E	154.5	158.3	162.3
E, annualized, % Δ		1.2%	0.5%
E, avg. monthly gain		158	67

The spreadsheet records what happened, 2017:Q4 through 2019:Q4. Average job growth of 158,000 per month was driven by very modest population growth married to a fall for the jobless rate and a rise for the overall participation rate.

The spreadsheet allows you to investigate different rates of job growth, over the next four years, a function of your guesses for population growth, and the end of forecast horizon levels of labor force participation and unemployment (2024:Q4). The arithmetic performed by the spreadsheet provides implied growth rates for the labor force and for employment.

I would suggest you begin by investigating three possible scenarios, all assuming that working age population, constrained by the collapse of net immigration gains, remains at 0.5% per year.

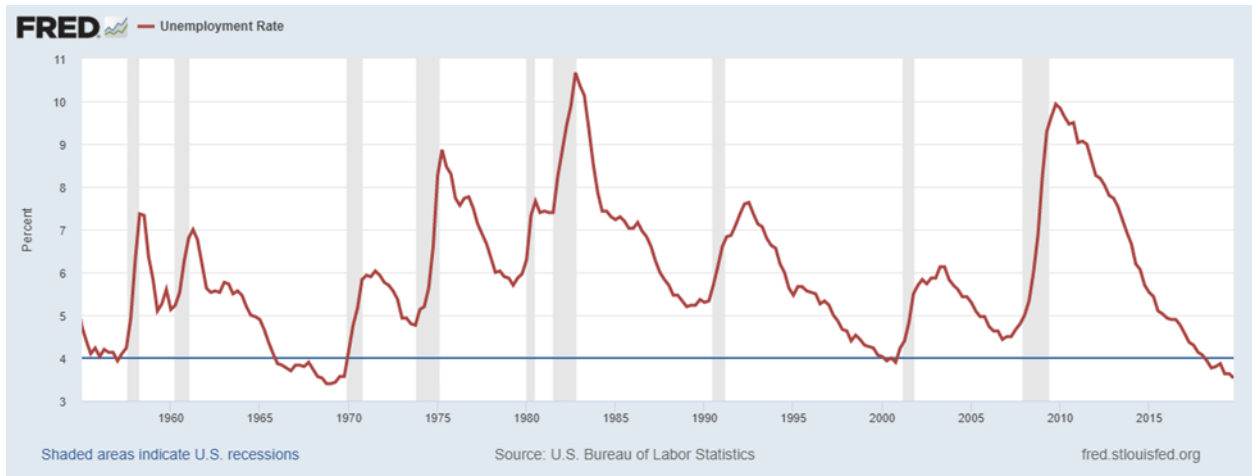
Scenario A: Calculate average monthly growth rates for employment, if both the participation rate and the unemployment rate are stable over the next four years.

Scenario B: Calculate average monthly growth rates for employment, if the participation rate rises and the unemployment rate falls over the next four years, at the same pace as they did over the past two years. (The result for scenario B should not surprise you).

Scenario C: Calculate average monthly growth rates for employment, if the participation rate returns to its previous peak amid steady unemployment over the next four years. Here is a look at the overall LFPR, since 1996:



Is it reasonable to forecast a continuation of the decline for unemployment, witnessed over the past two years, for the next two years? Here is a look at the post-war jobless rate:



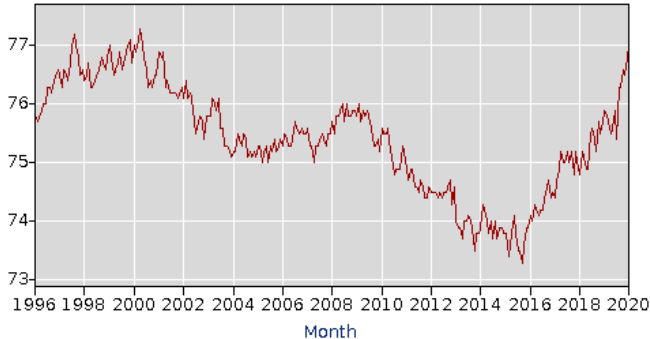
Is it reasonable to forecast a rebound to the previous peak for overall labor force participation? We need to drill down into the participation rate data, to answer that question. Not surprisingly,

participation rates vary substantially, a function of the age of the individual. Consider the following charts, depicting historical participation rates for four subsets of the working age population:

Prime Age LFPR (25 to 54):



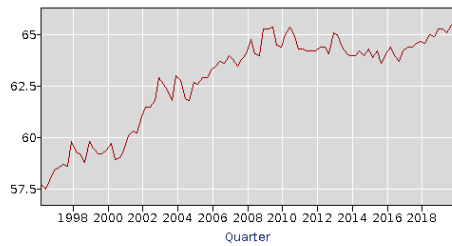
A breakdown of prime age participation, by gender, Female:



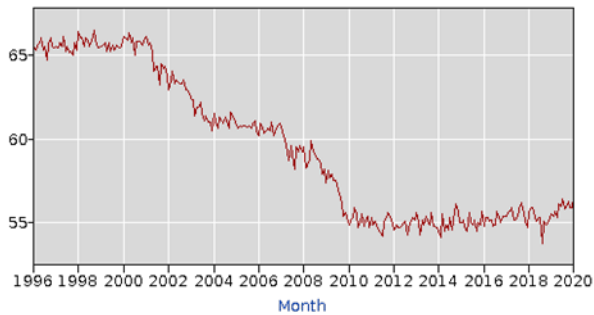
And Male:



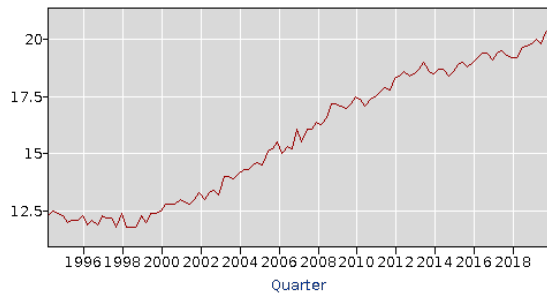
Not quite boomers: 55 to 64



Labor Force Participation Rate (Just Kidding: 16 to 24)



Labor Force Participation Rate: (OK boomer: 65 and older)



Given these different participation rates, by age group, we need to look at what may be happening to the sizes of different age groups. Forecasting changes in the size of age groups, it turns out, is fairly safe. We know the current sizes, and we, sort of, know death rates, versus aging rates. Here are BLS projections for changes in age cohort percentages:

AGE Group:	2019:Q4 % of Pop	2024:Q4 % of Pop
16 to 24	14.4%	13.9%
25 to 54	48.6%	47.7%
55 to 64	16.4%	15.2%
65 and up	20.5%	23.1%
total	100.0%	100.0%

Note that the only age group gaining share is 65 and older group. Retiring baby boomers are swelling these numbers. This means that the overall participation rate declines, if participation rates, for each individual age cohort, remain constant. The fact that the lion’s share of the net increase in the labor force occurs among oldsters—individuals who are much less likely to work—means that the overall participation rate falls, despite steady individual age cohort rates:

	2019:Q4 % of Pop	2019:Q4 LFPR		2024:Q4 % of Pop	2024:Q4 LFPR	
16 to 24	14.4%	56.0%	8.1%	13.9%	56.0%	7.8%
25 to 54	48.6%	82.8%	40.2%	47.7%	82.8%	39.5%
55 to 64	16.4%	65.5%	10.7%	15.2%	65.5%	10.0%
65 and up	20.5%	20.5%	4.2%	23.1%	20.5%	4.7%
total	100.0%		63.3%	100.0%		62.0%