

# Should the Phillips curve consider new variables in this economy?

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Economists have been studying why inflation did not fall further during the Great Recession, and why it has not risen more quickly during the recovery, as was true of past recessions. One tool economists use to predict inflation during recessions is the Phillips curve. The Phillips curve explains the inverse relationship between inflation and unemployment. As an economy recovers after a recession, the unemployment rate tends to fall (signaling a stronger economy) and the inflation rate tends to rise (because of rising wages). In [“Inflation and the gig economy: have the rise of online retailing and self-employment disrupted the Phillips curve?”](#) (Federal Bank of Dallas, Working Paper 1814, November 2018), author John V. Duca studies how self-employment (or gig employment) and online shopping may have affected inflation and unemployment rates in the current economy.

To test the effects of self-employment and online shopping, the author added self-employment and online sales to the Phillips curve’s model to examine how each has impacted the curve, both independently and together. Data for these variables come from the U.S. Census Bureau and individual income tax returns. Models predicted that the rise of online shopping has flattened the Phillips curve. As the curve flattens, unemployment rate changes are slower to react to inflation changes. This is can be attributed to brick-and-mortar retailers facing increased competition from online retailers which kept prices from rising too quickly.

The author goes on to examine how the rise of self-employment created shifts in the workforce contributing to the flattening of the Phillips curve. To capture this variable, the author used IRS reports showing the share of individuals who paid the self-employment tax. As more and more of the workforce joins the gig-economy, it reduces the bargaining power of labor. This decreases the natural rate of unemployment and wages, further complicating how a central bank’s policies may affect the economy. The author confirmed this by comparing a baseline model of the natural rate of unemployment with a hybrid model that accounted for both online sales and self-employment. For the third quarter of 2018, his hybrid model had the natural rate of unemployment at around 4.09 percent, compared with the baseline of 5.87 percent.

The author concluded that policymakers should consider using models that include more variables to explain inflation in the current economy, rather than simply relying on the benchmark, non-gig economic model. This would capture changes the labor market is experiencing because of the increasing importance of self-employment and online shopping. Both may become even more important in the coming years, because of technological improvements in the areas of artificial intelligence and robotics.