

As is taught in introductory macroeconomics courses, it is possible to think of GDP in two different ways. One is as the dollar value of all final sales of goods and services produced by factors of production located within the United States (classic GDP) and the second is as the dollar value of all the income generated by that production (Gross Domestic Income or GDI.)

The two measures are equal to each other by definition. But in practice, one can try to calculate GDP either using production data or using income data. If we obtain the production and income numbers from different sources, we're certain to end up with different numbers for what is supposed to be the nation's GDP. The difference between "gross domestic product" (GDP) and "gross domestic income" (GDI) is simply reported by the BEA as a "statistical discrepancy." The appeal of exploiting the information in GDI to date recessions is simple: it is as comprehensive as GDP, but it may capture information about the economy missed by measured GDP.

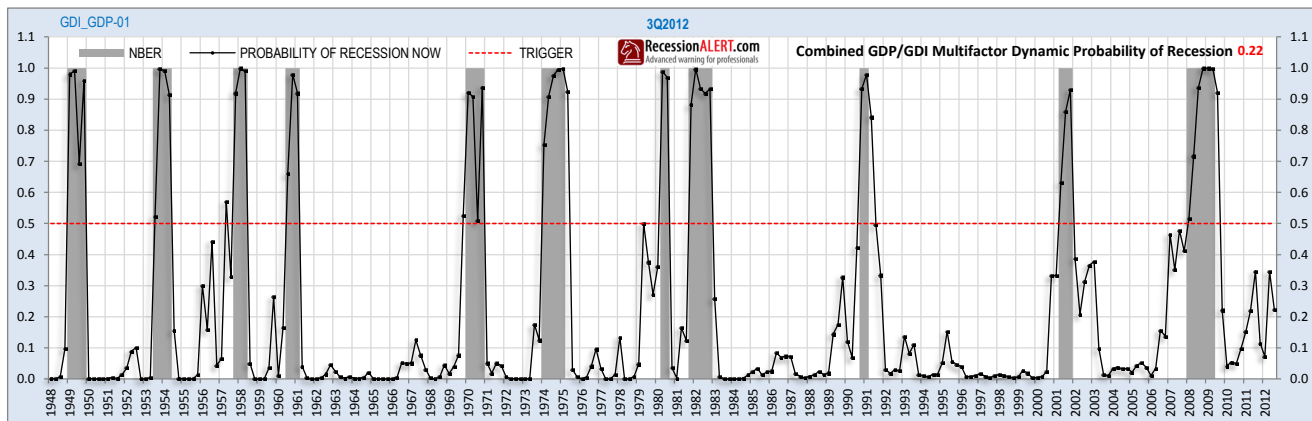
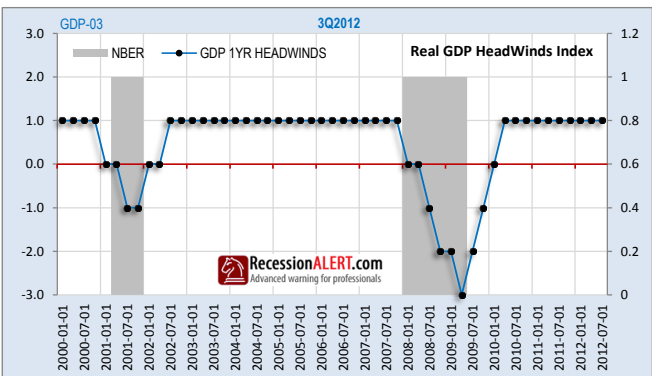
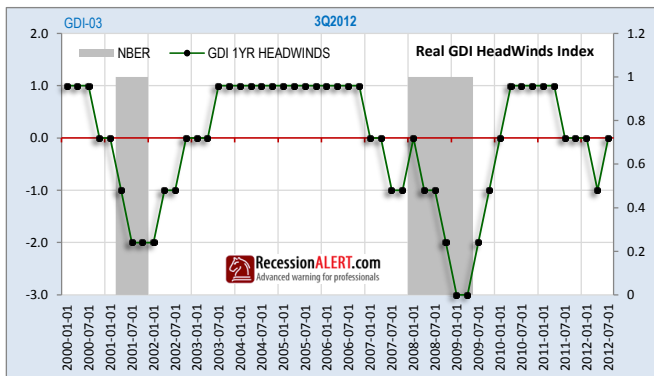
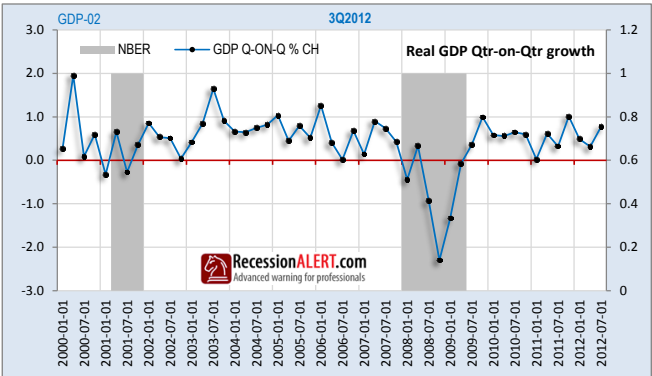
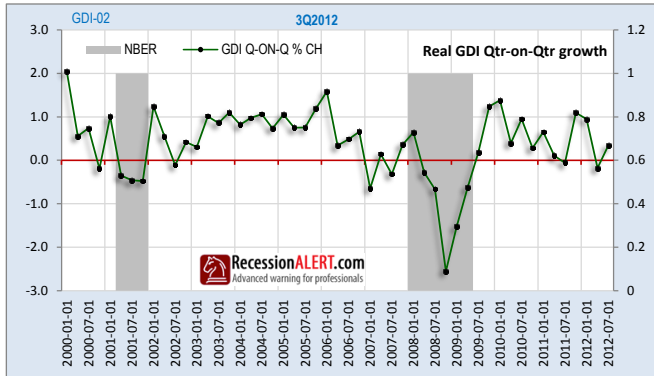
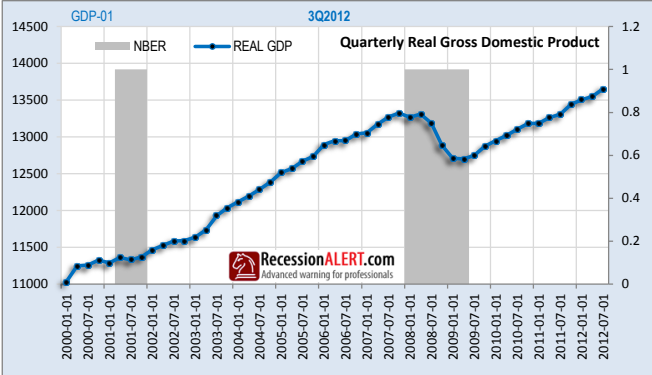
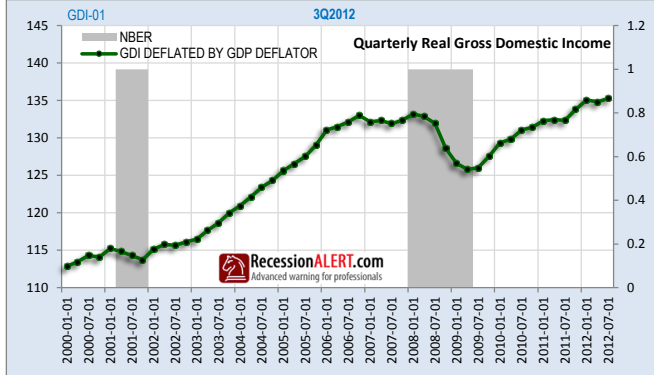
Whilst most economists and business cycle analysts utilise classic real-GDP to determine recessions, several research papers have shown GDI deflated by the GDP deflator to be much more accurate at signalling recession starts in real-time. This is because GDI tends to weaken much faster in onset to recession than GDP.

The BEA release GDP one months after the quarter has ended whilst GDI for the quarter only gets published a month after that. Therefore a model that deploys both GDP and GDI for economy estimation is desirable from the point of timeliness.

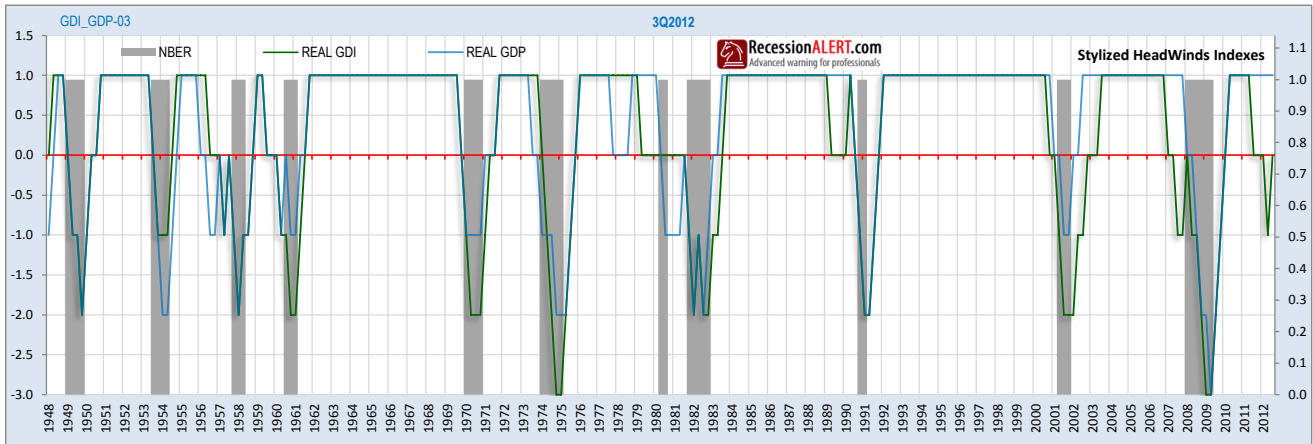
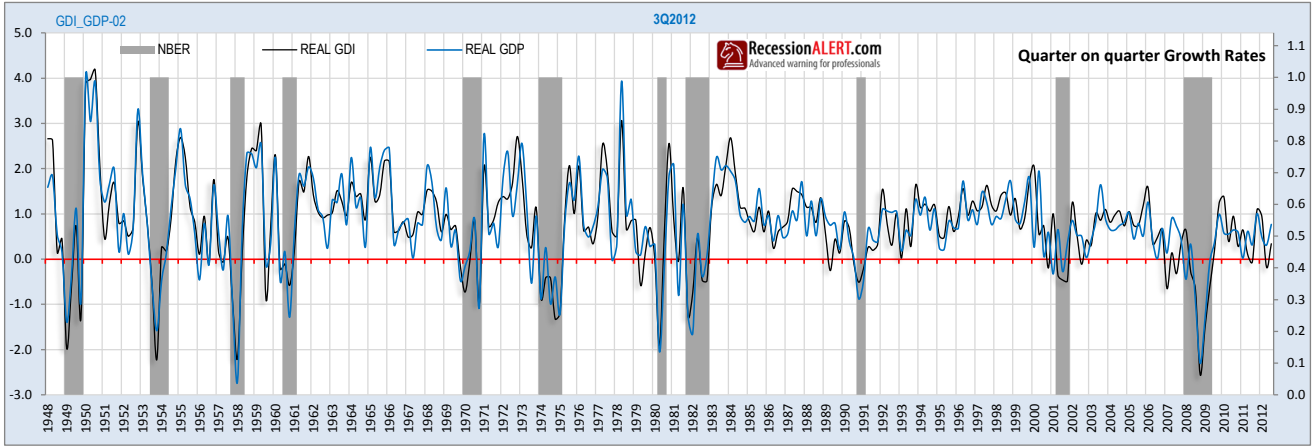
We utilise the 1-quarter growth rate of each of GDP and GDI as input into our dynamic factor recession dating model, as we have found this to be the single most powerful factor for recognising recessions ($R^2=0.68$) However we have found that incorporation of the prior 2 quarters readings for these numbers into a multifactor model *substantially* improves accuracy of the model to $R^2=0.89$.

We have also deployed stylized approaches to the observed behaviour of GDP and GDI using the methodology described on <http://recessionalert.com/a-stylized-approach-to-recession-forecasting/> which further improves the model to $R^2=0.92$.

The recession probability model deploys 7-factors. Real GDP quarterly growth, and the prior quarters' readings, and a GDP Headwinds index form the 3 factors contributed by GDP to the model. Real GDI quarterly growth, and the prior two quarters' readings, and a GDI Headwinds index form the 4 factors contributed by GDI to the model. **CLICK THIS MESSAGE BOX TO GO TO RESEARCH NOTE ON WEB SITE.**



HISTORICAL CHARTS



Using the 8-factor dynamic factor probability model that incorporates 4 factors from GDP and 4 from GDI, we can extract a new modified representation of the U.S production of goods and services that incorporates the output and the income side of the equation. Note that this is far more sophisticated than merely aggregating GDP and GDI together to achieve a dual-sided representation of output. We extract a month-by-month growth index (1st chart below) and a cumulative output index (2nd chart) below. These are more reflective representations of GDP for the U.S economy and include the benefits of both GDP and GDI into one index.

