

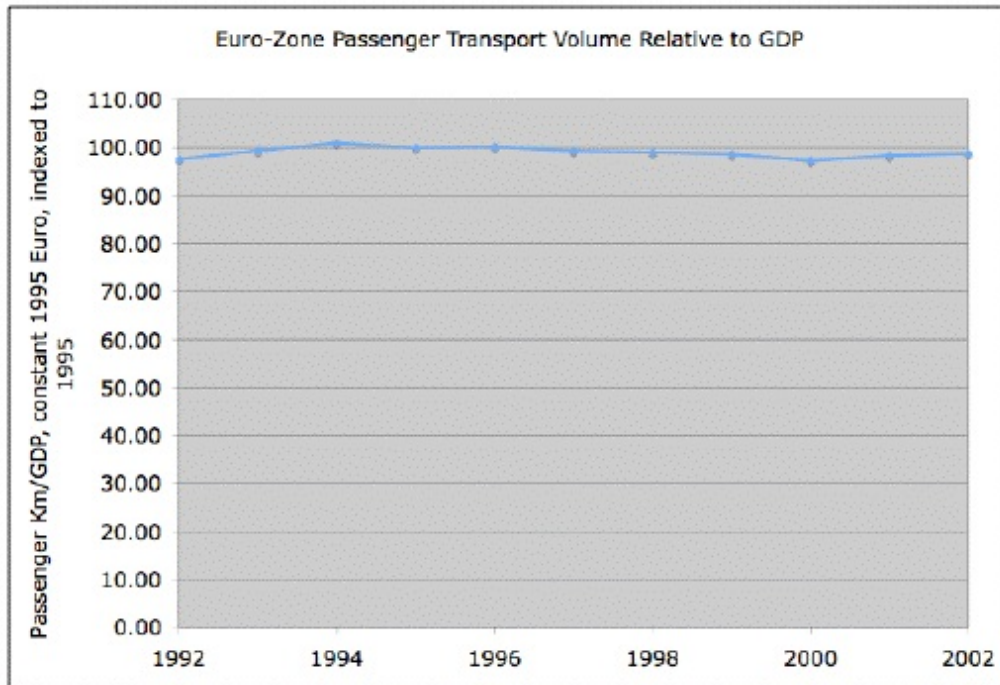


Driving the European GDP

Posted by [Stuart Staniford](#) on October 21, 2005 - 8:37pm

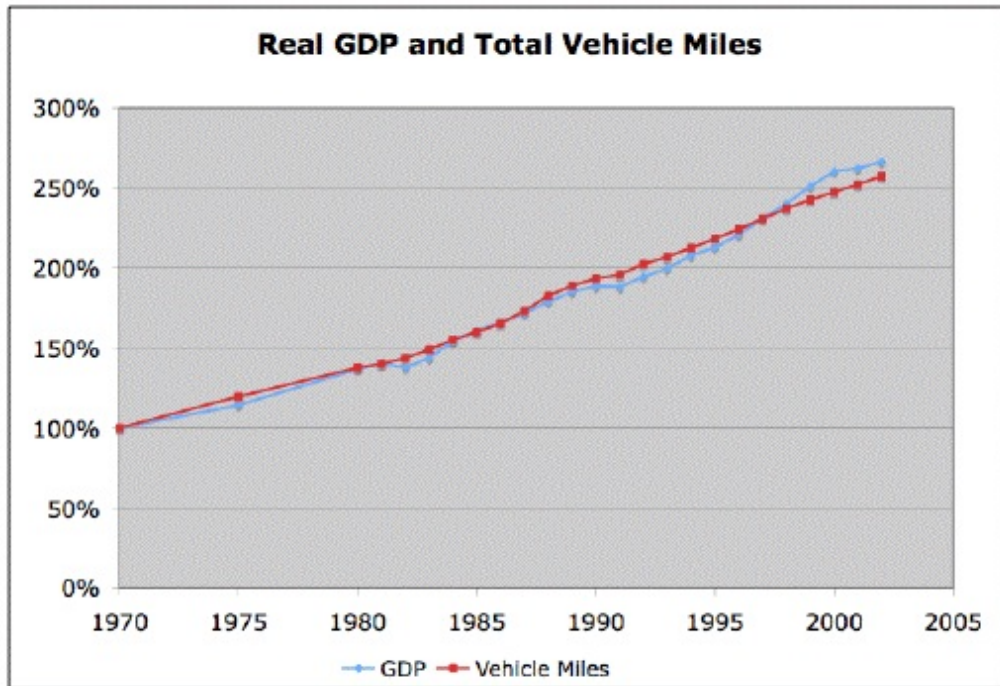
Topic: [Economics/Finance](#)

Tags: [gas prices](#), [hubbert peak](#), [oil prices](#), [peak oil](#) [[list all tags](#)]



This post is part of a series on the economic response to oil shocks, which I'm doing to gain a deeper insight into likely post-oil-peak economic occurrences. It began with a [discussion of the stability of the mix of consumer spending](#), moved on to [consider the productivity and efficiency of transportation](#), dived more deeply into what the [US economy did to become less oil intensive](#), and then looked at [behavioral driving responses to oil shocks](#). Readers with long memories will also realize the significance of these issues to my [decline-rate based model](#) of what might happen to the US economy post peak.

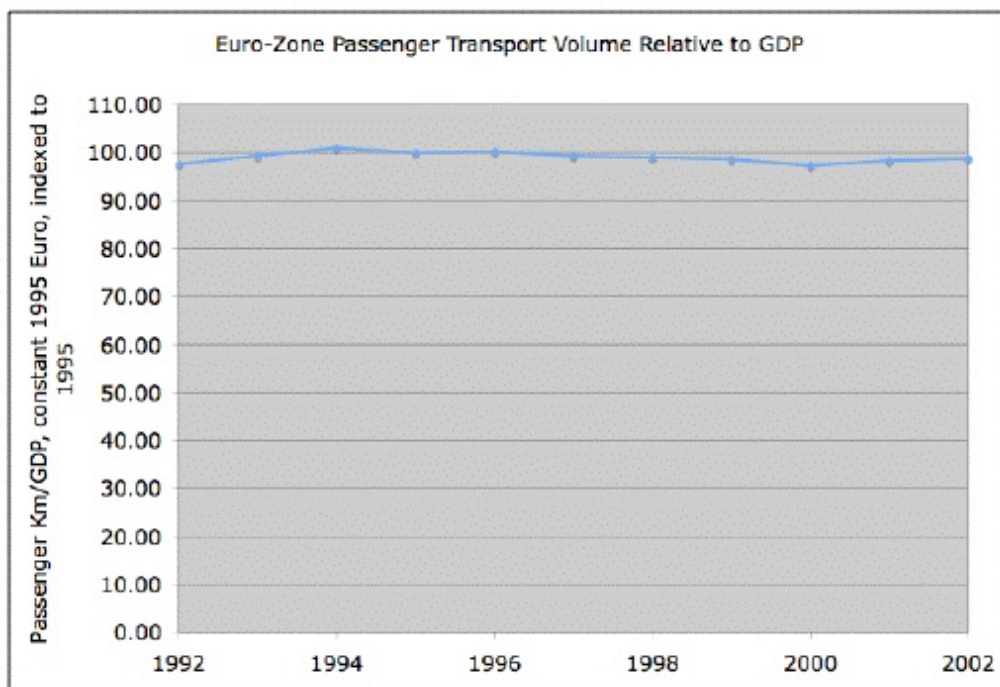
I wanted to explore in more depth this graph:



Is there really a strong causal link between real GDP and vehicle miles driven, as one can't help but wonder staring at the graph, or is it just a fluke?

The next thing to get out of the way is whether the situation seems to be repeated elsewhere in the world. If there was some strong causation, we'd expect this relationship to hold in other countries, at least developed ones. If it was a fluke, presumably the same fluke wouldn't happen everywhere.

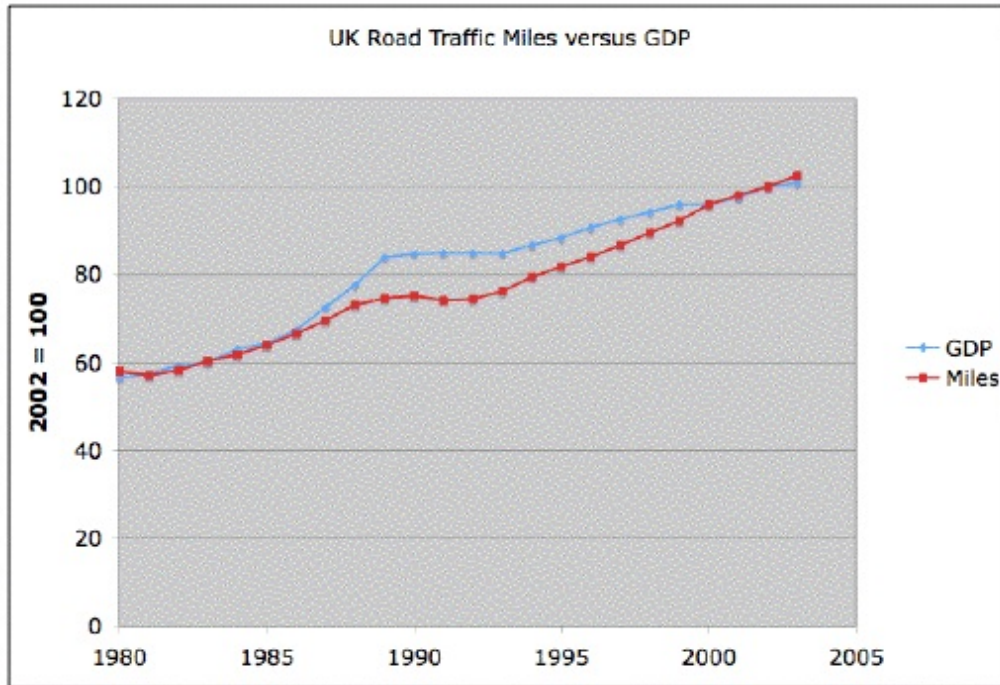
So I found [some European statistics](#) on total passenger transport volume divided by real GDP:



It's rather a short time series, and it's not quite the same thing as we plotted in the US, but it certainly doesn't hurt our causality hypothesis. The table at the [the reference](#) actually has data

for quite a few countries but since it's all expressed in constant euros, I expect that exchange rate volatility would dominate the variations in the data, except for the euro-zone, so that's what I plotted here.

Next we turn to the UK. We can find [road traffic statistics here](#), and [GDP statistics here](#). If we index both to 2002 and plot, we get:



Interesting! Clearly, we do not have the lockstep effect present in the US data. Also, it clearly is possible to deter the British from driving, but only a little bit and only briefly. It's pretty clear that's what's going on in response to the 1980 Iraq-Iran war shock, and the 1990 first Gulf war shock.

Of course, Britons have more viable alternatives to driving than Americans. Urban densities are much higher, so biking and walking are more likely to be able to get you somewhere useful in a reasonable amount of time. And likewise, the higher densities make for a much more financially viable public transit system, which therefore exists and is useful. So maybe all those industrial revolution housing developers throwing up vast forests of tightly packed small houses were actually doing the country a big favor in the long haul. (As a little boy, I lived in a two-up two-down, much like, and not far from, this one which Ringo Starr was born in).



And yet, despite the variations, somehow the two lines appear to get unhappy if they are apart for too long and by the end of the story, the lovers, having started so close and then drifted apart, have a touching reunion. Conclusive proof of a strong causal relationship? Certainly not. But still, rather suggestive that while the relationship between GDP and vehicle mileage is a little looser in Europe, it still exists. At any rate, I am encouraged enough for today to now want to explore in a different direction in a new post.

But just before moving on, it's worth noting the slope of the UK line versus the US line. UK real growth over the period averages 2.6% annually. US growth over the same period averages 3.1%

annually. Just suppose for a moment that there was a strong causal coupling between miles driven and real GDP. Then what would be the effect of a public policy of very high gas taxes? And if that was what was going on, what does that tell us about the price of gas required to stop further increases in driving? Or I wonder about the macro-economic effects of a stronger planning regime to prevent urban sprawl into the countryside of a crowded island? So many interesting questions, so little time...



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