

Business cycles become less synchronised over time: Debunking “decoupling”

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Less synchronised business cycles would be good news for the world economy, allowing for more stable global growth and opportunities for risk-sharing across countries. However, is decoupling fact or fiction? This column says that, contrary to much current commentary, there is no downward trend in synchronisation.

Much recent research has investigated the degree of cross-country synchronisation of business cycles, primarily from an empirical perspective. Two recent contributions are [Kose, Otrok and Prasad](#) (2008) and [Wälti](#) (2009); the former make a cautious case for “decoupling”, while the latter is more sceptical.

This is an important debate

If business cycles are becoming less synchronised over time, this “decoupling” is good news for the world economy, allowing for more stable global growth and opportunities for risk-sharing across countries. However, is decoupling fact or fiction? In this brief contribution, I provide a simple graphical examination of the data, following [Flood and Rose](#) (2009). This clearly reveals that business cycles have not in fact becoming less synchronised of late; that is, there is little evidence of decoupling in the data. Rather, business cycles seem to have become increasingly similar across countries. This tendency is well exemplified by the dramatic downturn in the global economy that began in 2008 and has affected essentially all economies of any size.

Searching for decoupling

I begin my search by casting a wide net, examining 64 countries with reliable data from 1974 through 2007. For each country, I take seasonally adjusted real GDP data from one of three different sources (the IMF’s International Financial Statistics and World Economic Outlook data sets, and the OECD).

Raw output is of limited interest, since the decoupling debate focuses on (the cross-country coherence of) business cycle deviations from trend. Thus it is necessary to detrend the output series. Since there is no universally accepted method, I use four different techniques to create trends. First, I use the well-known Hodrick-Prescott filter. Second, I use the more recent Baxter-King band-pass filter. Third, I construct the fourth difference, thus creating annual growth rates from quarterly data. Finally and perhaps least plausibly, I construct trends by regressing output on linear and quadratic time trends as well as quarterly dummies.

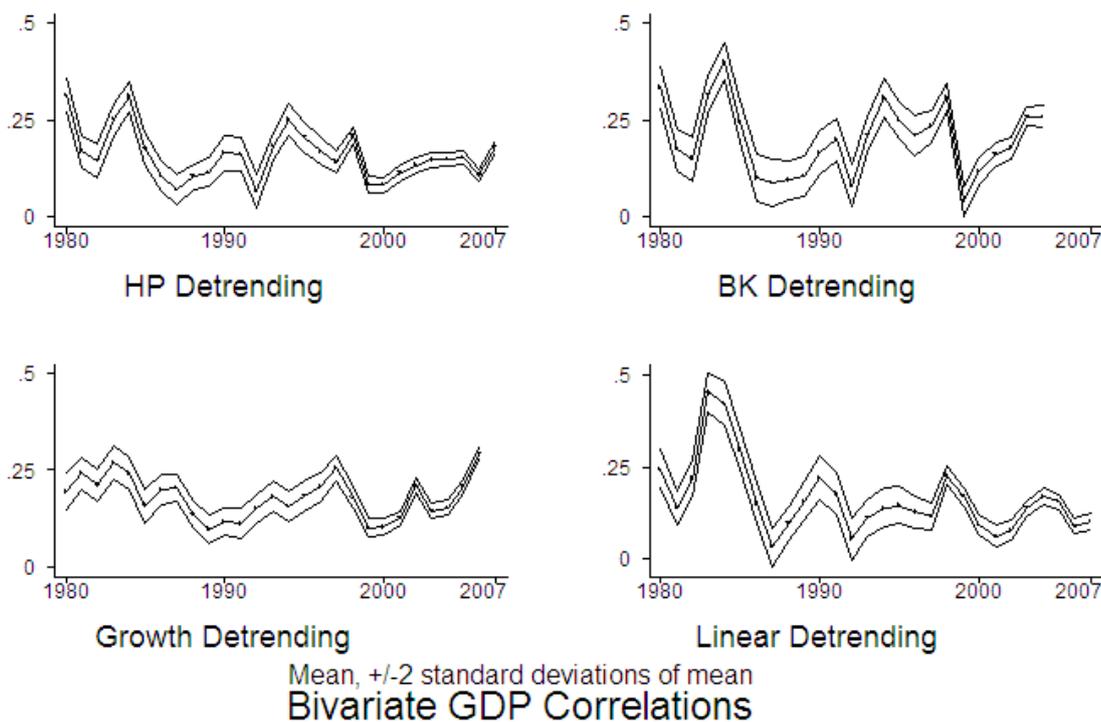
Having created business cycle deviations for all our countries, I then compute measures of cross-country coherences of business cycles. I do this by creating conventional sample Pearson correlation coefficients, as is now common practice in the literature (e.g., [Baxter and Kouparitsas](#), 2005). The correlation coefficients are created using twenty quarterly observations (five years) of data. This statistic, computed between a pair of countries over time, constitutes the key measure of business cycle synchronisation. Note that this measure is not constrained to be constant across time for a pair of countries.

“Decoupling” is sometimes considered to refer to the linkages between a particular developing country

and a composite of industrial countries (not simple random pairs of countries). Accordingly, we construct analogous measures for the G7.

Figure 1 presents a first look at the business cycle synchronisation measures. It contains time series plots of their mean values, averaged across all feasible country-pairs at a point in time. There are four graphs, corresponding to the four different detrending techniques (Hodrick-Prescott, Baxter-King, deterministic linear/quadratic regression, and growth rate). In each case, the average value of the correlation coefficient and a confidence interval of ± 2 standard deviations (of the mean) are portrayed.

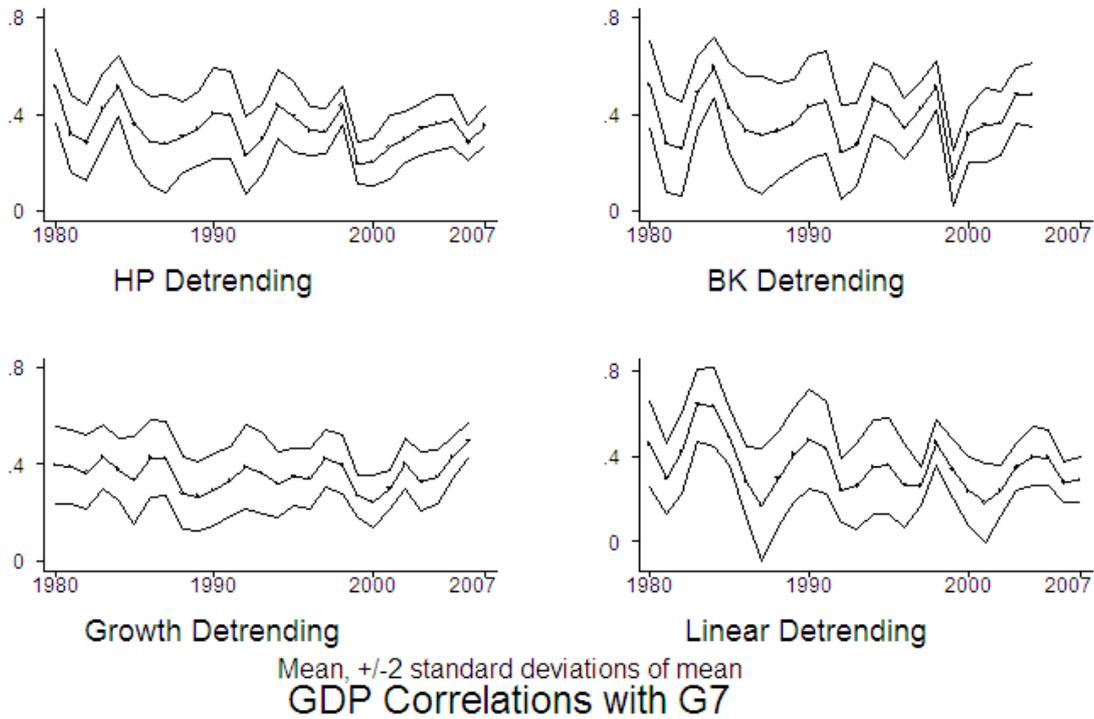
Figure 1. Bivariate GDP correlations



The single most striking thing about the trends portrayed in Figure 1 is that there are no obvious trends. The average level of synchronisation varies some over time, but it is typically around a level of .25 or so. There is, however, no evidence that the average correlation coefficient is significantly lower (in either economic or statistical terms) towards the end of the sample. That is, there is little prima facie evidence of “decoupling.” If anything, there is a slight tendency for business cycles to be slightly more correlated across countries in 2007 compared to, say, 2000.

Figure 1 considers bilateral measures of synchronisation; all possible pairs of countries are considered (there are over 2000). Figure 2 is an analogue that considers business cycle synchronisation between a given country and an index for the business cycle of the G7 industrial countries. In this more multilateral sense, there is still no evidence that business cycles are becoming more isolated from each other.

Figure 2. GDP correlations with G7



Some think of “decoupling” as referring to a shrinking relationship between the business cycles of industrial and developing countries. Accordingly, Figure 3 is an analogue to Figure 1 that only considers pairs of countries in which one country is industrial and the other is developing. Again, no dramatic declines in the degree of business cycle synchronisation are apparent; instead, the correlations seem to fluctuate around an approximately constant mean. The same description characterises Figure 4, which is an analogue to Figure 2 that considers only business cycle synchronisation between developing countries and the G7 aggregate.

Figure 3. Bivariate GDP correlations, industrial-LDC pairs

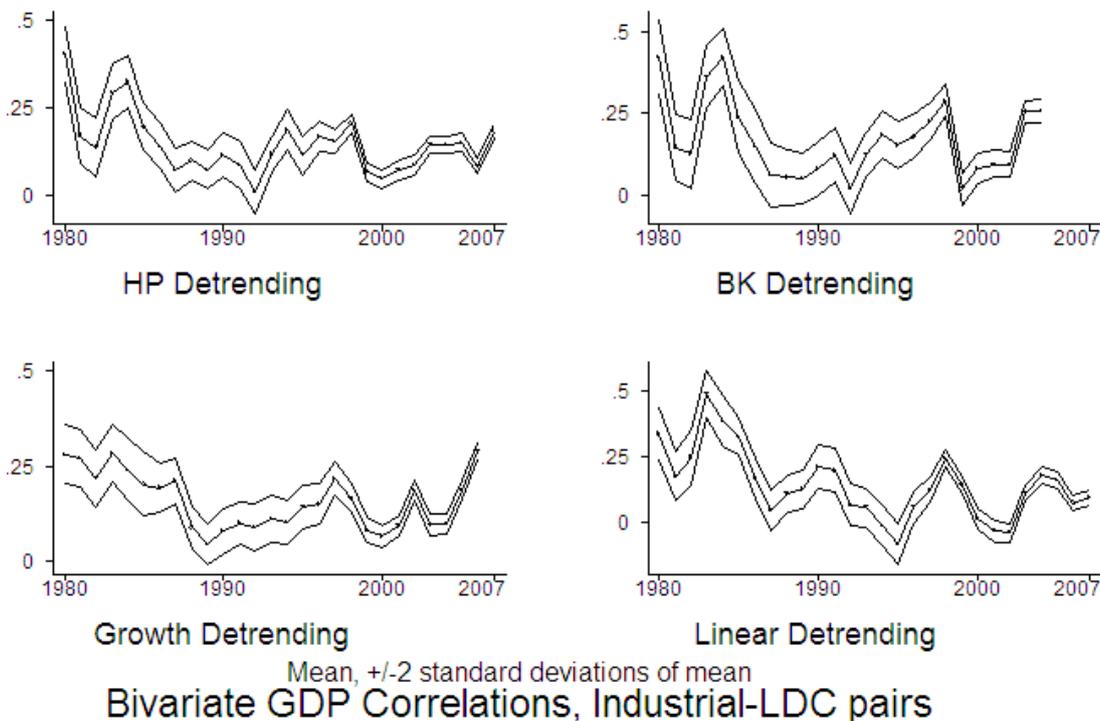
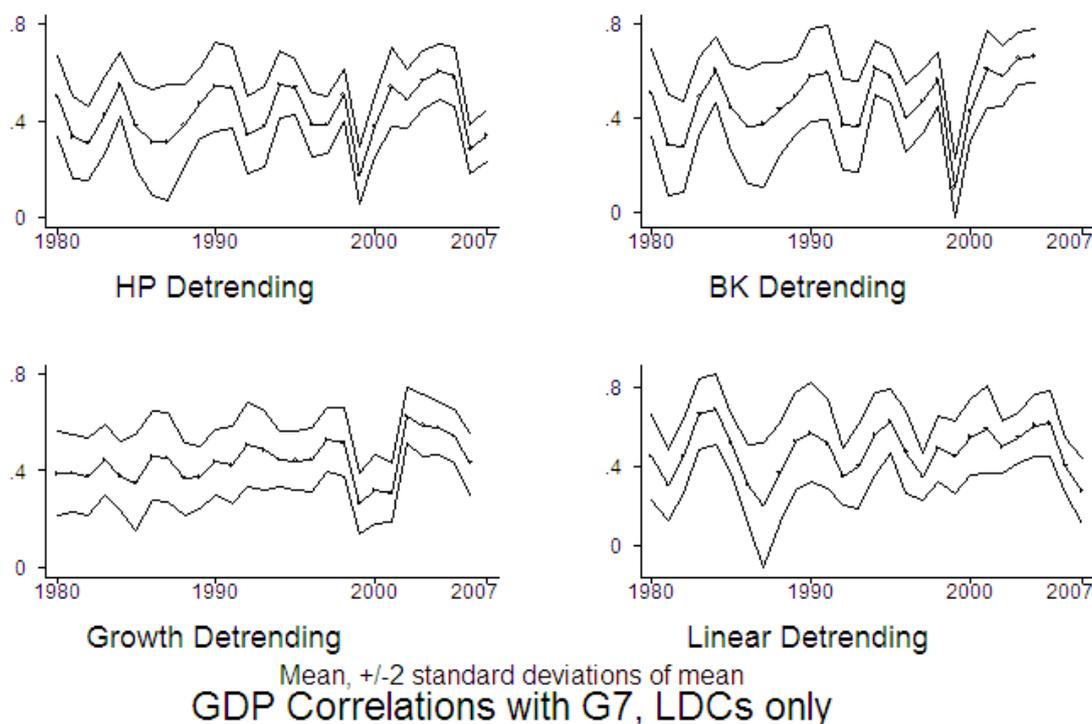


Figure 4. GDP correlations with G7, LDCs only



Conclusion

The current economic downturn is not only unusually severe and prolonged but also quite widespread. Essentially all industrialised countries have turned down during the past year, as have many developing countries. This synchronisation of business cycles across countries is by no means an unusual event. Indeed, contrary to much recent discussion (e.g., *Economist*, 2009), the world's countries seem to be moving more closely over time, not less. That is, there is little evidence of "decoupling," the idea that business cycles are becoming more independent and less synchronised across countries.

References

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