Patterns of recession and recovery

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Summary

- *Around 70 per cent of all recessions in Western capitalist economies are short-lived and last for only a single year*
- *This is the case regardless of the size of the fall in GDP in the first (and often only) year of recession. Even when the initial fall is as large as 6 per cent, 70 per cent of such recessions last for just one year*
- *The typical recovery pattern is strong. In the year following recessions lasting just one year, GDP growth is on average 3.5 per cent and 3.8 per cent in the subsequent year*
- *Recovery is more hesitant for recessions which last 2 years, but even then the typical growth rate in both the first and second years of recovery is just under 3 per cent*
- *This evidence is compatible with the view that most recessions are primarily inventory cycles, in which inventories are reduced and fixed capital investment spending postponed, before normal rates of production and investment resume*

1. Introduction

The fall in output (GDP) in the current recession in the major Western economies has been sharp. In the United States, for example, in both 2008Q4 and 2009Q1 GDP fell at an annual rate just above 6 per cent.

Figure 1 plots the quarterly pattern of percentage changes in GDP since the start of the recession.

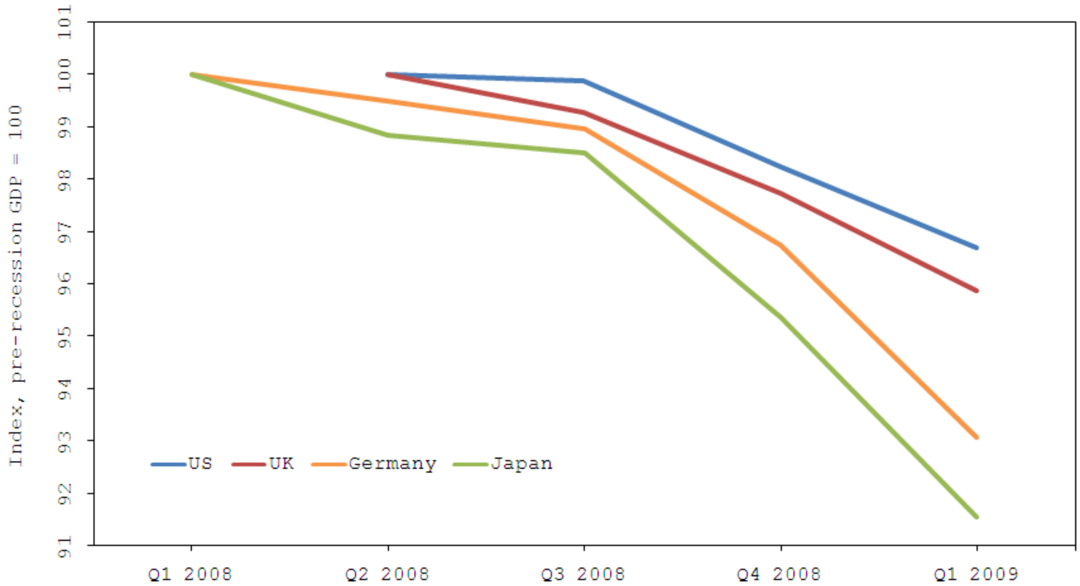
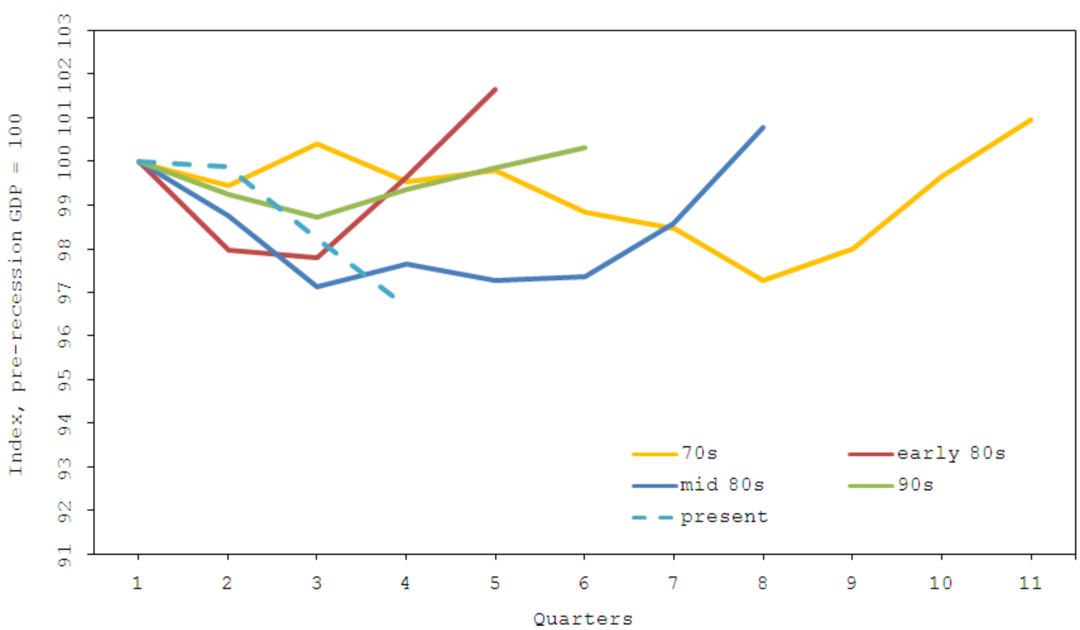


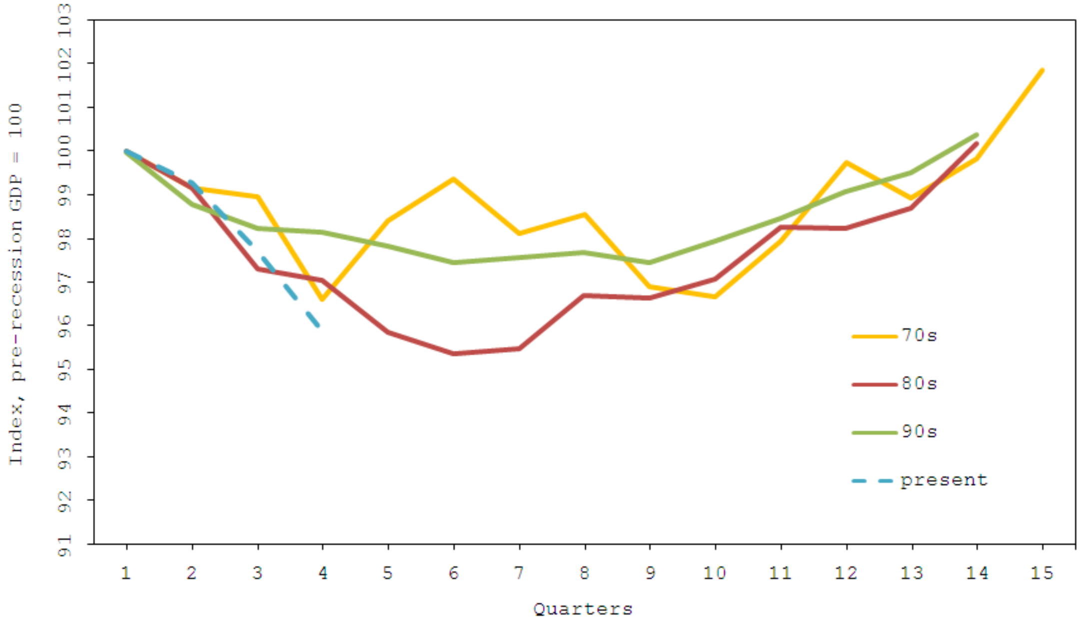
Figure 1 *Quarterly path of real GDP during the current recession in the US, UK, Germany and Japan. In each case, the level of GDP at the start of the recession is indexed at 100.*

Figures 2(a) to (d) set out for each of the US, UK, Germany and Japan the quarterly pattern compared to other post-war recession from the mid-1970s onwards.

US



UK


Index, pre-recession GDP = 100
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Quarters
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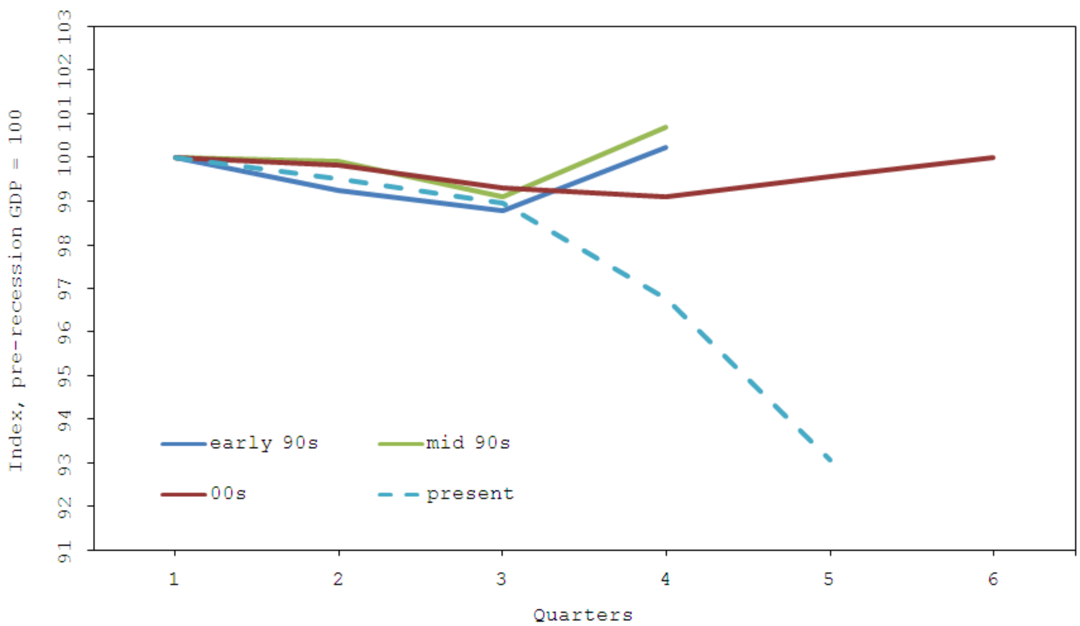
80s
90s
present

Germany


Index, pre-recession GDP = 100
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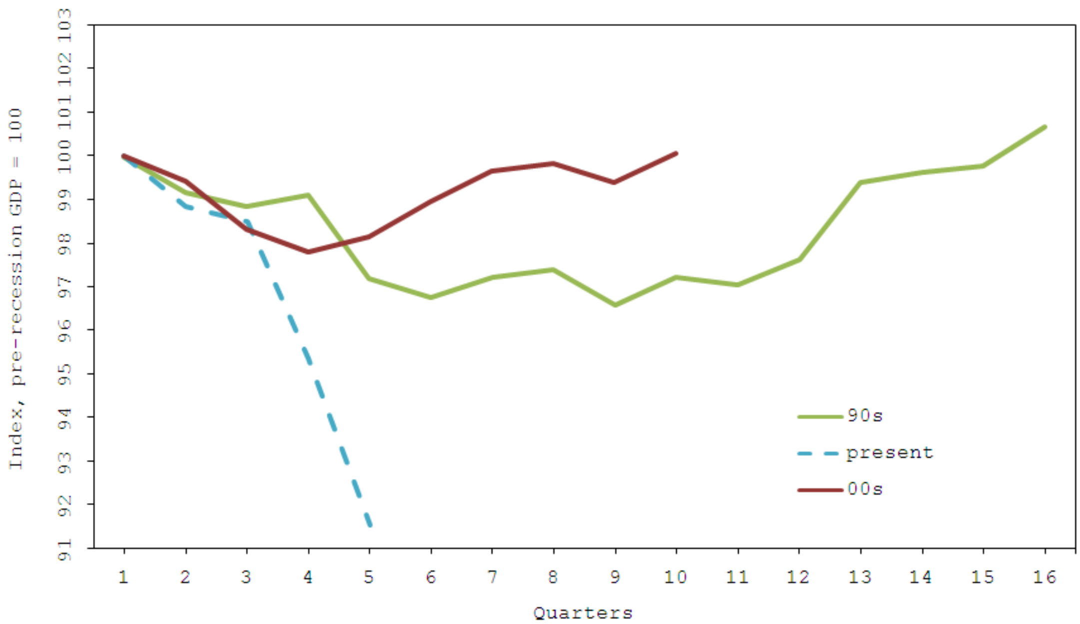
Japan



Figures 2(a) – (d) *Paths of the current and previous post-war recessions in the US, UK, Germany and Japan, quarters from start of recession, previous peak GDP level indexed at 100 in each case*

Given the apparent severity of the initial phases of the recession, the aim of this note is to consider:

- the potential duration of the recession given the sharpness of the initial falls in output
- the pattern of recovery following the recession

2. The sharpness of the initial fall in GDP and the duration of recessions

Most recessions under capitalism are short-lived. A plausible reason for this is that most recessions are essentially inventory cycles. During the upswing, businesses tend to become too optimistic about future prospects. As a result, production begins to run ahead of sales and inventory levels rise. Firms then cut back on production in order to restore inventories to more reasonable levels. As part of this process, fixed investment projects may be postponed. Temporary reductions in capital expenditure plus actions to reduce inventory levels are of themselves inherently of short duration. The adjustment takes place quickly.

However, a concern about the current recession is that the fall in output has been severe. This might suggest that the recession is likely to be longer lasting. Before considering this, we summarise briefly the evidence on the duration of recessions in Western economies over a long period of time.

Using the 17 countries in the Maddison database, there have been 255 examples of recessions over the 1871-2008 period as a whole.

Table 1 ***Duration of recession, years, i.e. number of consecutive years in which real GDP growth is less than zero***

	Years						
Number	1	2	3	4	5	6	7
	164	58	20	6	5	1	1

Source: calculated from Maddison (1995) and IMF databases

The definition of a recession is the conventional one of a year in which the rate of growth of real GDP in a country is less than zero. (Quarterly data is only available for the post-Second World War period, and even then for many countries it only starts in the 1960s or even 1970s). The results are qualitatively similar if an alternative is used: a recession is the years in which GDP remains below its previous peak level[1].

The striking feature of the duration data is that approximately two-thirds of all recessions last only a single year, using the conventional definition of a recession. The Western economies therefore appear prima facie to be able to recover quickly after an initial shock.

This is the case, it must be noted, even when the data is divided into pre- and post-Second World War periods. Output fell sharply in almost every country at the very end of the world war, due to destruction in the defeated powers and de-mobilisation in the victorious, so we remove this from the sample because it makes the pre-and post-war samples more similar to each other. Pre-war, 70 per cent of all recessions lasted just 1 year, post-war the percentage is 75.

Interestingly, there is really no connection at all between the duration of a recession and the size of the initial shock, defined to be the percentage fall in real GDP in the first year of any given recession. Table 2 sets out the evidence for this.

[1] P Ormerod, 'Recessions and the resilience of the capitalist economies', *Risk Management*, 2009, forthcoming and www.paulormerod.com. Yet another alternative which is sometimes used is to try to identify the underlying trend rate of growth at any point in time, and deem any year in which growth is below the relevant trend number as a contractionary period. However, the ability of time-series techniques to identify trend growth is highly questionable. Technical points aside, we have only to ask the question: what was the trend rate of growth of the UK economy in the 21st century to date to see how problematic this is. In any event, this approach leads to years where growth is just below trend but above productivity as being classed as recessions. But in such years, employment grows!

Table 2 Percentage fall in GDP in the first year of a recession and the duration of recessions, 17 Western countries, 1871-2008 (excluding the war related years 1914-19, 1939-47)

Initial fall in real GDP (%)	Duration (years)							
	1	2	3	4	5	6	Sum	% lasting 1 year
Total	147	45	10	3	2	1	208	71
> 1	87	25	8	2	0	1	123	71
<1	60	20	2	1	2	0	85	71
>2	69	17	5	2	0	0	93	74
<2	78	28	5	1	2	1	115	68
>3	44	11	4	1	0	0	60	73
<3	103	34	6	2	2	1	148	70
>4	34	9	3	1	0	0	47	72
<4	113	36	7	2	2	1	161	70
>5	25	6	2	1	0	0	34	74
<5	122	39	8	2	2	1	174	70
>6	19	5	2	1	0	0	27	70
<6	128	40	8	2	2	1	179	72

The table splits the total sample into two groups, one of which considers the duration of recessions when the initial fall in GDP is less than *n* per cent, the other when it is more than *n* per cent. So, for example, there have been 123 recessions when the initial fall in GDP was less than 1 per cent, and of these 87, or some 71 per cent, lasted just 1 year. There have been 85 recessions when the initial fall in GDP was more than 1 per cent, and of these 60, or again some 71 per cent, lasted just 1 year.

Even when the initial fall has been large, in excess of 6 per cent, 70 per cent of recessions have lasted just a single year. So the fact that this is approximately the annual rate of contraction in America, for example, in 2008Q4 and 2009Q1, does not necessarily indicate that the recession will be long lived. Indeed, even in the 11 examples in the database where the initial fall in GDP was more than 8 per cent, 8 of them only lasted a single year.

This does not of course guarantee that the current recessions in Western economies will also be short-lived, but equally the speed of the fall does not by any means imply that the recessions will be long.

3. Patterns of recovery

The consensus amongst economic forecasters is that the recovery, when it happens, will be rather slow and hesitant. For example, the peak level of GDP in the US was reached in 2008Q2. The consensus amongst forecasters in April 2009[2] was that growth at or near trend would not be resumed until the second half of 2010, and the 2008Q2 level would not be regained until the first half of 2011. In the UK, the official government forecasts have been widely criticised as being too optimistic. After a projected fall in GDP of 3.5 per cent in 2009, the government predicts a rise of 1.25 per cent in 2010 followed by 3.5 per cent in 2011.

There is a substantial literature which shows that such forecasts have an extremely poor record of predicting turning points in the economic cycle[3]. As an illustration, the consensus forecast in May 2008 for UK GDP growth in 2009 was + 1.6 per cent.[4] Indeed, as late as October 2008, the consensus forecast was still positive for 2009, albeit only just at +0.1 per cent. However, the peak level of GDP in the UK was reached in 2008Q1, so by October GDP had already been falling for six months.

Focusing on recessions since the Second World War, and using annual data, an analysis of a total of 37 recessions (to 2008) in 17 countries suggests that for recessions with only short duration, the typical recovery pattern is rapid. The average growth rate in the year after the recession was 3.5 per cent, and in the subsequent year 3.8 per cent.

Figure 3 plots the experiences of recovery in these recessions.

[2] http://www.financialcrisisupdate.com/economic-forecasts/

[3] For example, R Fildes and H Stekler, 'The state of macroeconomic forecasting', *Journal of Macroeconomics*, 24, 435-468, 2002

[4] http://www.hm-treasury.gov.uk/data_forecasts_index.htm

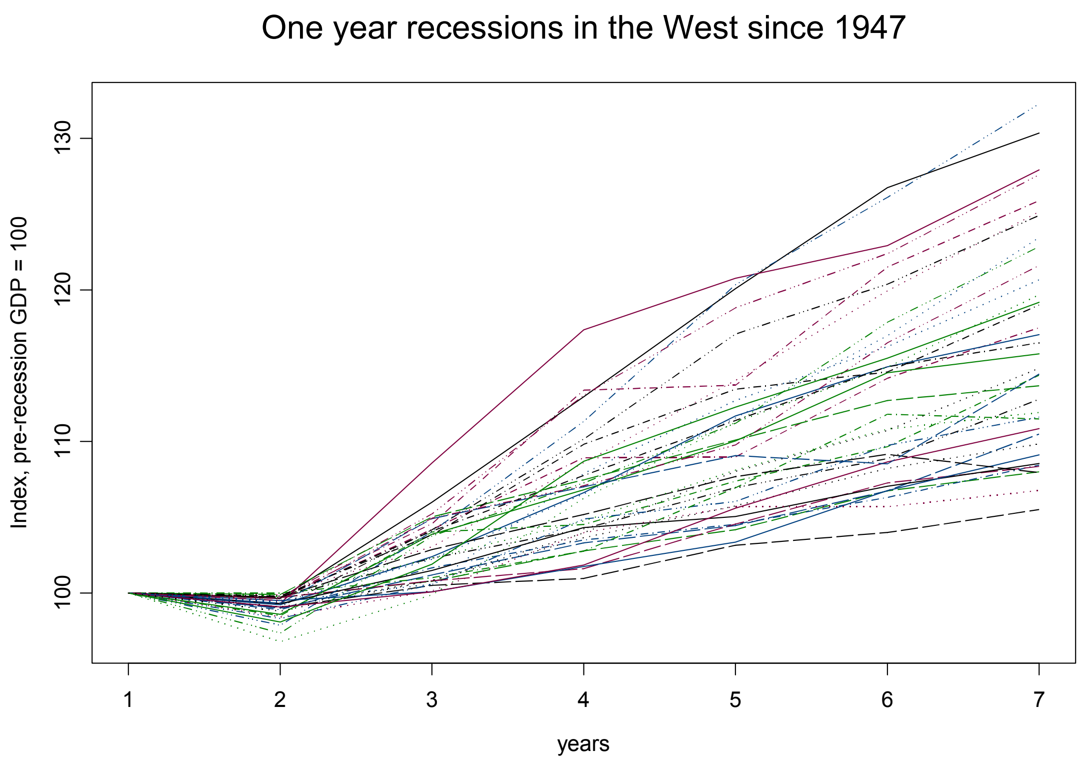


Figure 3 *Recovery profile of GDP in the 37 post-war recessions in 17 Western economies since 1947 which have lasted one year. Year 1 is indexed at 100 for each country at the peak level prior to the recession. Year 2 is the recession year, and years 3 and onwards are the recovery years*

Table 3 sets out the summary statistics of growth rates of GDP registered in the first and second years of recovery

Table 3 Summary statistics of GDP growth rates, per cent, in the first and second years following 1 year recessions, 17 Western countries since 1947

	Min	1st Quartile	Mean	3rd Quartile	Max
First year	0.6	2.1	3.5	5.1	9.3
Second year	0.5	2.0	3.8	5.7	8.4
Second year on year of recession	1.9	4.6	7.5	9.8	18.2

So whilst there are some example of hesitant growth following a one year recession, in general once recovery starts it is strong. This is certainly compatible with the view that short recessions are essentially inventory cycles. Once inventories are reduced to satisfactory levels, normal production levels resume, and fixed capital investment expenditures postponed during the recession are carried out.

In the UK, for example, the 4.8 per cent GDP growth rate projected by the government 2009 – 2011, the object of criticism for being too optimistic, is in fact very close to the first quartile figure. In other words, a rather modest recovery in this wider context.

Post-war data suggest, however, that once a recession is prolonged and lasts for 2 or more years, recovery is rather more hesitant. We only have 12 examples since 1947 and one of these was the 1991-93 recession in Finland where in addition to a banking crisis, there was the collapse of the Soviet Union, a very important trading partner for that country. Peak to trough output fell by over 12 per cent, much worse than in the Great Depression of the 1930s.

Figure 4 plots the experience of recovery in these recessions.

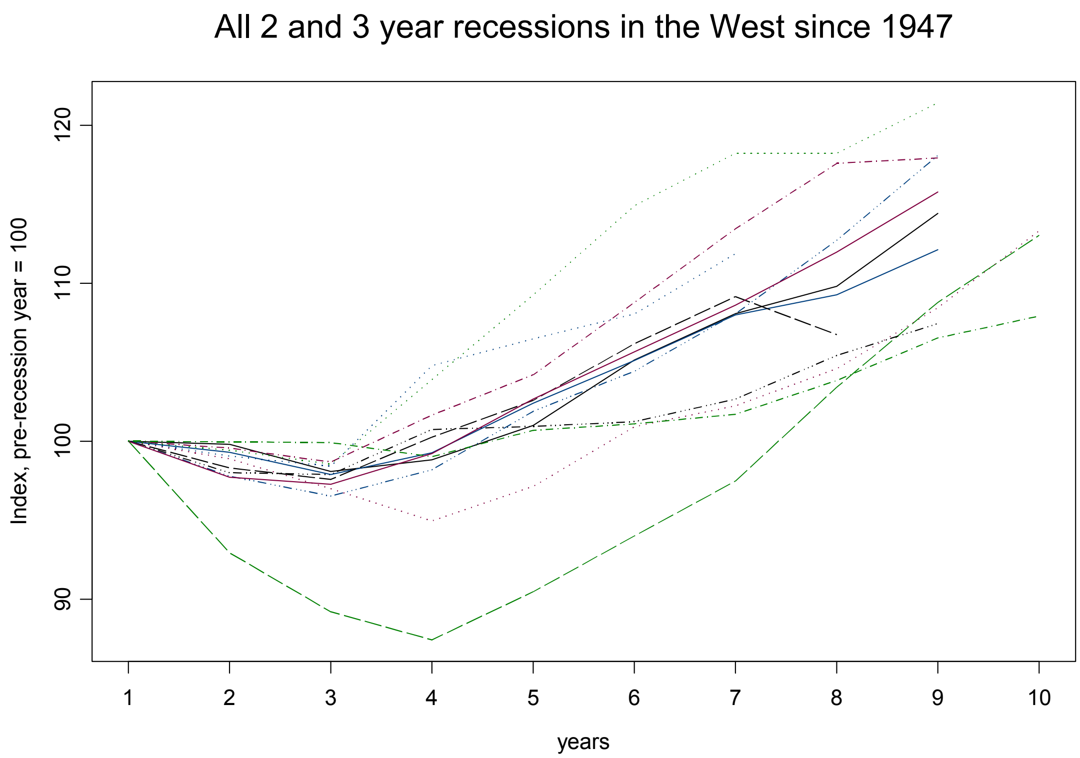


Figure 4 *Recovery profile of GDP in the 12 post-war recessions in 17 Western economies since 1947 which have lasted 2 or 3 years. Year 1 is indexed at 100 for each country at the peak level prior to the recession. Years 2 and 3 are recession years in all countries in the sample, and year 4 is also a recession year for some examples. The extreme drop plotted by the dashed green line is Finland in the early 1990s*

Tables 4a and b set out the data in a similar fashion to that in Table 3

Table 4a Summary statistics of GDP growth rates, per cent, in the first and second years following 2 year recessions, 17 Western countries since 1947; 9 examples

	Min	1st Quartile	Mean	3rd Quartile	Max
First year	0.7	1.7	2.9	3.0	6.5
Second year	0.2	2.2	2.7	3.5	5.2
Second year of recovery on final year of recession	3.0	4.6	5.7	5.6	10.9

Table 4b Summary statistics of GDP growth rates, per cent, in the first and second years following 3 year recessions, 17 Western countries since 1947; NB only 3 examples, Finland, Sweden and Switzerland, all 1991-93

	Min	Mean	Max
First year	1.7	2.5	3.5
Second year	0.4	2.7	3.9
Second year of recovery on final year of recession	2.1	5.3	7.5

Note: Only 3 examples available for Table 4b so the first and third quartile calculations are not given

These results are confirmed by examining GDP growth rates in the inter-war period. Data for the inter-war period is complicated both by the recessions which took place in many countries at the end of and immediately subsequent to the First World War, and of course by the catastrophic impact of the Great Depression in some of the leading economies. However, there are 25 examples of recessions lasting just a single year, with an average fall in output of 3.8 per cent. In the first year of recovery, output growth averaged 7.8 per cent, followed by 4.8 per cent in the second year. So recovery patterns were in general even stronger in the inter-war than in the post-war period.

The experience of the Great Depression itself varied enormously across countries, both in size and duration. In three countries, for example, GDP growth was negative in only a single year in the 1929-1933 period, and these examples are included in the results in the paragraph above and excluded from this. The (unweighted) falls in output in 1931, 1932 and 1933 were 2.0, 5.3 and 2.4 per cent respectively, but in Austria, Canada, Germany and the US, the cumulative fall in output was in excess of 20 per cent.

However, once the recovery began – in different calendar years in different countries – the average rate of growth was strong, though again less than that seen after 1 year recessions in the inter-war period. So GDP growth in the first year after the Great Depression average 4.7 per cent, followed by 4.6 per cent in both the second and third years.

Averaging across all 12 of the recessions lasting 2 or 3 years, the previous peak level of GDP is regained after 4 years, and after just 3 years of Finland is excluded from the averaging. So in the current context, if 2010 in addition to 2009 were to prove to be a recession year, the 2008 peak would be expected to be regained in 2011.

The results do suggest in general that, just as economic forecasters were far too optimistic about prospects for 2009 even as late as the autumn of 2008, they seem too pessimistic about recovery profiles.