



Total Factor Productivity of the United Kingdom Food Chain 2012 – final estimate

The total factor productivity (TFP) of the United Kingdom food chain is an indicator of the efficiency and competitiveness of the food industry within the United Kingdom. An increase in TFP indicates the industry is improving its competitiveness.

1. Key messages

- Total factor productivity of the UK food chain beyond the farmgate fell by 0.3 per cent in 2012. It has been rising gradually since 2002.
- Benchmarking against a wider economy measure shows that the average annual growth in the food chain between 2002 and 2012 was 0.6 per cent compared to 0.2 per cent in the wider economy.
- Productivity in both food manufacture and food wholesale has risen overall since 2000 whilst productivity of food retail and catering are at a similar level to 2000.
- Comparing 2012 with 2011 the retail sector of the food industry saw a year on year increase in productivity.

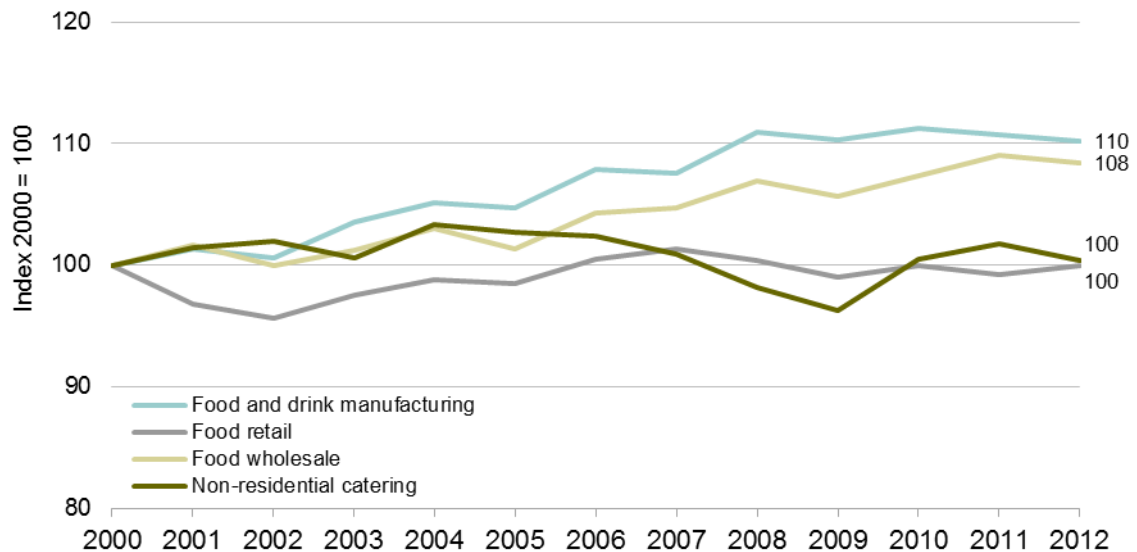
2. Overview

In 2012 the food chain (excluding agriculture) accounted for about 6.5 per cent of national Gross Value Added. Four sectors make up the food chain: retail, manufacture, wholesale and non-residential catering. Both alcoholic and non-alcoholic drinks are included in food. Total factor productivity is a measure of the efficiency with which inputs are converted into outputs. For example, TFP increases if the volume of outputs increases while the volume of inputs stays the same. Similarly, TFP increases if the volume of inputs decreases while the volume of outputs stays the same. Although there is a practical limit on how much food people want to buy the volume of output can increase due to increases in quality of products and by increases in exports.

This estimate for 2012 is final because all underlying data has been released as a final version. See the notes section for more details. The background data and charts in this release can be downloaded [here](#).

3. Sector headlines

Total Factor Productivity trends within the UK Food Industry 2000 to 2012



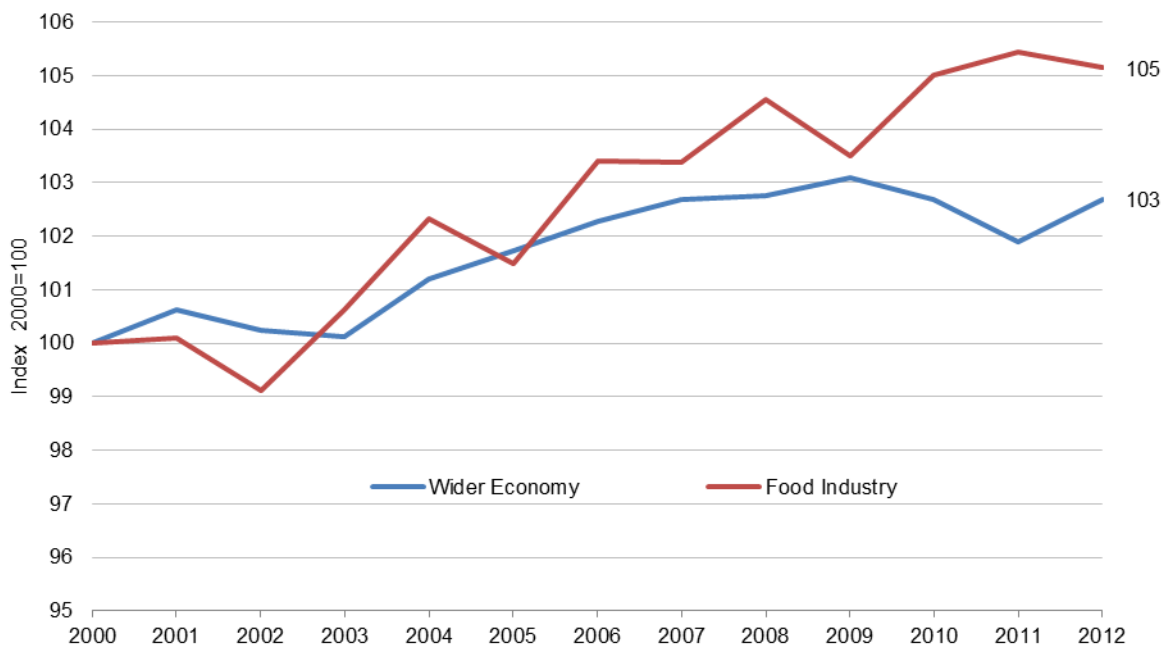
- Food and drink manufacture** has had the largest long term gain in productivity in the food chain with labour volume dropping by 26 per cent since 2000. The decrease in productivity in 2012 was due to the decrease in input volumes being less than that of output volumes.
- Food wholesale** productivity has risen gradually since 2002. Productivity has reduced slightly by 0.5 per cent in 2012 due to both input and output volumes falling.
- Food retail** productivity in 2012 was 0.8 per cent higher in 2012. Productivity rose due to a small increase in output volumes (0.1) whilst the input volumes fell by 1.3 per cent. Food prices were on average 3.3 per cent higher in 2012 than in 2011.
- Non-residential catering** in 2012 showed a 1.3 per cent decrease in productivity after showing growth in both 2010 and 2011. Productivity peaked in 2004 and declined to its lowest point in 2009. After year on year increases seen in 2010 and 2011, a slight increase in input volumes (0.2) and a fall in output volumes of 1.4 per cent contributed to the reduction in productivity for 2012. Catering is more affected by the state of the economy than other sectors of the food chain, and its productivity over the last 10 years reflects the economic downturn and recent recovery.

4. Benchmarking the UK food chain against the wider economy

An estimate of total factor productivity in the wider economy is calculated for comparison purposes from the same data sources, using the same method, as the food chain. This measure does not cover the full economy but rather non-public sector industries that are covered by the Annual Business Inquiry/Annual Business Survey. Financial services are the largest sector not included in the measure.

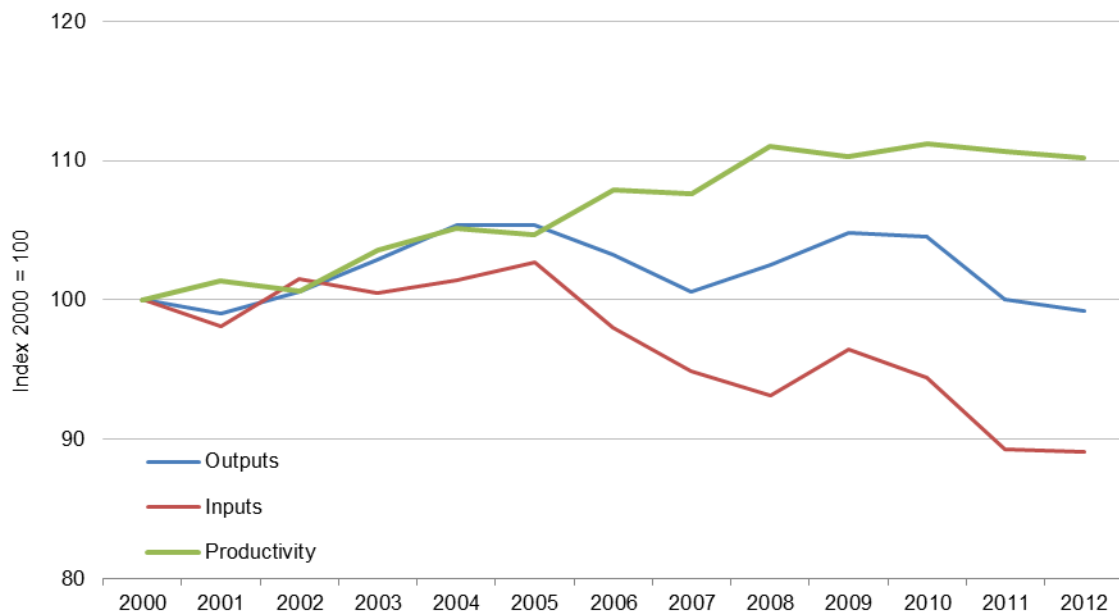
Between 2002 and 2012, the average annual growth rate of the food chain was 0.6 per cent whereas the wider economy's average annual growth rate was 0.2 per cent. Since 2005 the food chain has been outperforming the wider economy in competitiveness.

Total Factor Productivity of the UK Food Sector compared with the Wider Economy for the UK



5. Sector Analysis

Manufacturing



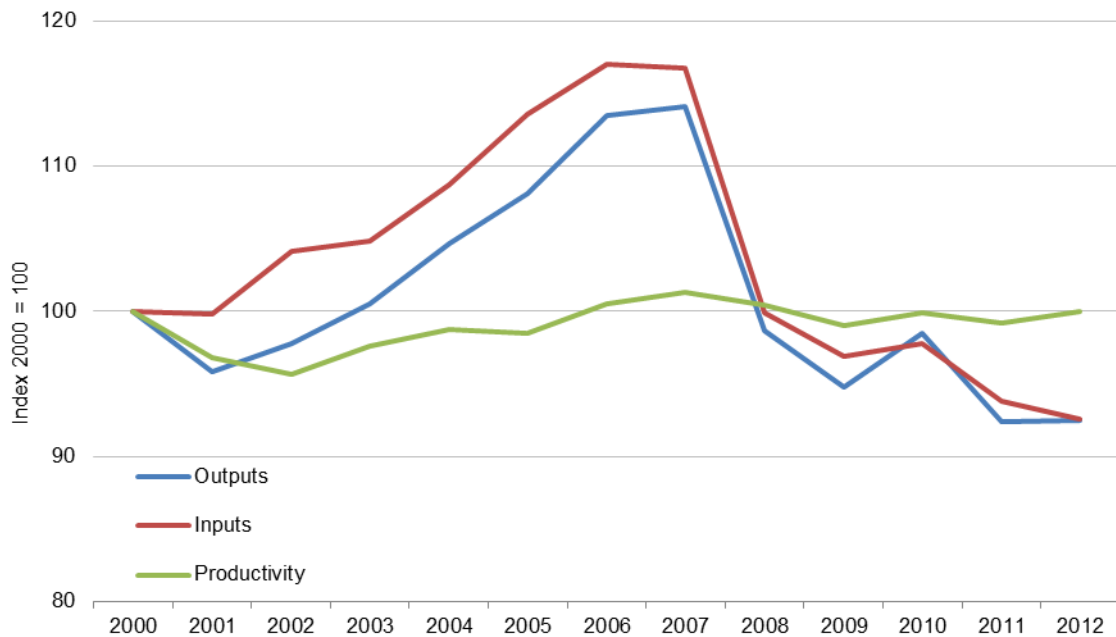
- In 2012, productivity in food and drink manufacturing decreased by 0.5 per cent, and has shown an average annual increase of 0.8 per cent since 2000.
- The decrease in productivity in 2012 was due to the decrease in input volumes being less than that of output volumes.
- Inputs continue a long term fall since 2005 of 13 per cent. Labour input is now 26 per cent lower than 2000.
- Output in food and drink manufacturing was 0.8 per cent lower in 2012 than 2000 and productivity was 10 per cent higher. Productivity growth has continued steadily since 2002 while output growth was strong up to 2005 but dropped sharply in 2006 and 2007. Output grew strongly in 2009 and 2010 but fell to its lowest level in 2012 since 2001.
- In 2012, food and drink manufacturing contributed 28 per cent to Gross Value Added of the food chain beyond the farmgate.

Wholesaling



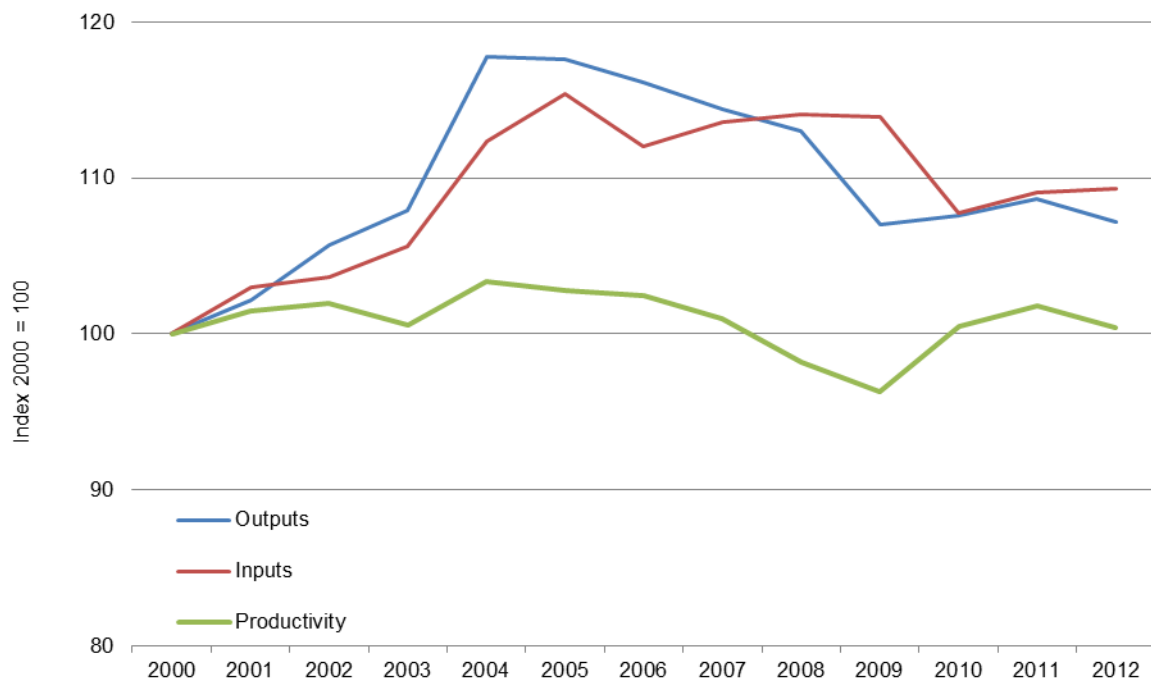
- Food wholesale productivity has reduced slightly by 0.5 per cent in 2012 due to both input and output volumes falling. Productivity has been on an upward trend since 2000 with an average annual increase of 0.7 per cent. Output was 6.0 per cent higher in 2012 than 2000 with productivity for food wholesaling 8.5 per cent higher.
- Even when output dropped in 2008 in response to the economic downturn productivity in food wholesaling continued to grow.
- In 2012 the wholesale sector contributed 11 per cent to Gross Value Added of the food chain beyond the farmgate.

Retail



- Apart from a small dip in the early part of the decade, productivity of the food retail sector has been largely unchanged from its level in 2000.
- Productivity in 2012 was up 0.8 per cent from 2011. This was due to a 1.3 per cent fall in input volumes and a 0.1 per cent increase in the output volumes. Food prices were on average 3.3 per cent higher in 2012 than in 2011.
- Labour input increased in 2011 after being in decline from its peak in 2004. The 2012 labour input was similar to the level seen in 2010. It is currently 9.6 per cent lower than its level in 2004.
- For both 2011 and 2012 output of food retailing was at its lowest point between 2000 and 2012. From 2002 to 2007, output grew by 16.7 per cent probably due to people buying higher quality products. Since 2008, output contracted as consumers responded to higher food prices by trading down and buying less.
- Productivity growth in food retailing stopped in 2008 coinciding with higher food prices and lower output. Note that improvements in shopping environment and convenience are not included as outputs in the productivity calculation, which treats output as food sales.
- In 2012 food retailing contributed 31 per cent to Gross Value Added of the food chain beyond the farmgate.

Non-Residential Catering (NRC)



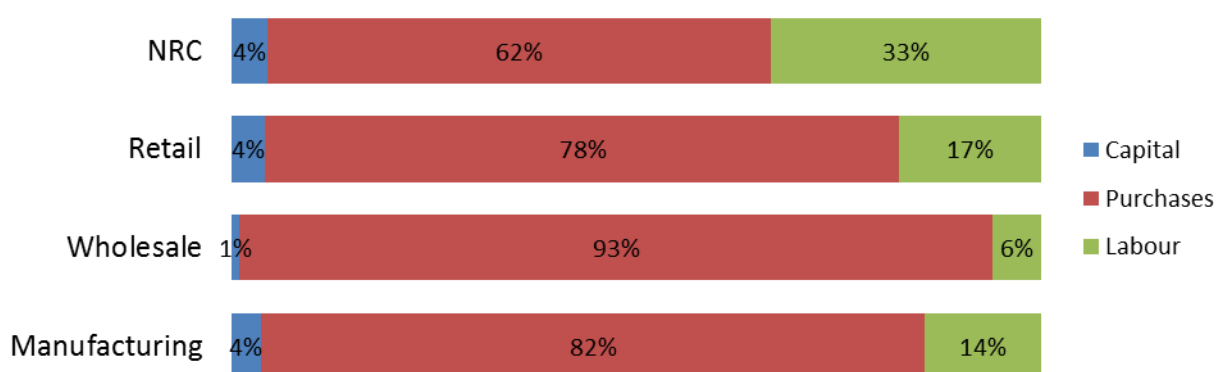
- Non-residential catering (NRC) showed a fall in productivity of 1.3 per cent in 2012 after two successive years of growth. The decrease in productivity in 2012 was due to an increase in labour of 2.8 per cent.
- Since 2004, productivity of NRC has been on a prolonged period of decline, however productivity in this sector increased in both 2010 and 2011 by 4.3 per cent and 1.3 per cent respectively. This sector would have been affected strongly by the recession that started in 2008 and lasted through most of 2009. These challenging economic times will make it difficult for companies to make proportionate savings across all inputs, especially with labour being a relatively high component. Consumers find it easier to cut on this form of spending on food. During periods of economic downturn it is likely that consumers will make savings through eating out less and switching to home cooking.
- Labour in NRC peaked in 2008 and is currently 11.5 per cent below that peak. Output was 7.2 per cent higher in 2012 than 2000. Output grew 18 per cent between 2000 and 2004 with strong consumer demand. From 2005 to 2009, output shrank and productivity fell to its lowest point in 2000 to 2012. Low output has continued between 2010 and 2012.
- In 2012, non-residential catering contributed 31 per cent to Gross Value Added of the food chain beyond the farmgate.

6. Background notes

TFP calculation

The method incorporates the inputs and outputs that are associated with monetary transactions but does not incorporate external effects on society and the environment. TFP differs from productivity by factoring in labour and capital consumption. This calculation covers labour, capital and purchases while output is the volume of sales. TFP is measured only in the form of changes as the change in the 'volume of outputs' divided by the change in 'the volume of inputs'. The series is annually rebased and chain linked. Inputs are measured in the form of labour, capital and purchases. Purchases (mainly food but also energy, water and other consumables) dominate the inputs in all sectors.

Contribution of inputs



A more detailed methodology note to accompany the release sets out methods, assumptions, data sources and revisions, and is available [here](#).

Revisions

Since the previous publication of this data on 30th January 2014, revisions have been made to the productivity data for sectors of the food industry going back as far as 2000. The scale of revisions can be viewed in the following document [here](#).

Revisions are due to updates to the Annual Business Survey data and a new release of Capital Stocks and Capital Consumption data, both released by Office for National Statistics. The Capital Stocks has a new methodology which has been backdated in TFP to 2000. Since this also contains estimates for 2010-12 for the first time, changes to the previously published TFP estimates for these years are larger than is normally the case. For more information click [here](#).

Reliability of 2012 Estimates

We do not calculate standard errors for the estimates because of the range of data sources being combined. Instead as an indication of reliability, we carry out a sensitivity analysis to show how dependent the TFP growth estimates are upon small shifts in the levels of the inputs and the outputs. The productivity estimate is more sensitive to changes in the volumes of purchases and outputs and less sensitive to labour and capital. For more information click [here](#).

7. Uses and potential uses of this data

Defra use TFP in the food chain beyond agriculture as a measure of how well the industry in the UK is improving its productivity and thereby on course to be competitive in the future.

Improving the productivity and competitiveness of food and farming businesses, while improving the environment is a priority for Defra. Domestically a more competitive, profitable and resilient farming and food industry is needed. As the UK economy recovers, this sector, like all others, needs to maximise its potential for sustainable growth, maintain and increase its chance of securing European and global trading opportunities, and meet society's needs. We also need a basic level of resilience against changing environmental conditions, price fluctuations, financial uncertainty and food availability.

The Food and Drink Federation use this data to communicate to its members (by tracking the industry's progress and promoting the sector) and they make this information available on their website.

Food and drink businesses can also use this data to track progress of the industry in general but this measure is not comparable with competitiveness measures applied to individual businesses and cannot be used to benchmark their own performances.

This measure is not directly comparable with the general calculation used by the Office for National Statistics to measure whole economy productivity. To enable a comparison with the wider economy we calculate TFP growth in the wider economy using this calculation, i.e. data from the Annual Business Survey. It is limited to coverage of the economy by the Annual Business Survey, which is the main structural business survey conducted by the Office for National Statistics. Prior to 2009 it was known as the Annual Business Inquiry - part 2. It collects financial information for about two-thirds of the UK economy, covering agriculture (part); hunting; forestry and fishing; production; construction; motor trades; wholesale; retail; catering and allied trades; property; service trades. The financial variables covered include turnover, purchases, employment costs, capital expenditure and stocks. Further details on the survey are at: <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/business-and-energy/annual-business-survey/quality-and-methods/index.html>

If you have any comments or questions about the data in this release please contact us via familyfood@defra.gsi.gov.uk or [@DefraStats](https://twitter.com/DefraStats).

Notes

- 1) The original research this statistics release is based on was published in May 2006 and is available here: [UK Food Chain Productivity Incorporating External Impacts](#).
- 2) Total factor productivity of agriculture is published in [Agriculture in the UK](#), Chapter 5. Data up to 2013 is available in Chart 5.1.
- 3) The UK food sector is defined in terms of the standard industrial classification (SIC 2007) as food manufacturing, food wholesaling, food retailing and non-residential catering:

Food Manufacturing:	10 & 11
Food Wholesaling:	46.17 & 46.3 less 46.35
Food Retailing:	47.11 & 47.2 less 47.26 & 47.81
Non-residential Catering:	56
- 4) These estimates are produced twice yearly. Most of the data is sourced from the Annual Business Survey (ABS), which is produced by the Office for National Statistics (ONS). The ONS release the ABS provisional estimates normally around November and the revised estimates are released around June.
- 5) Data in this release comes from the Annual Business Survey published in June 2014, The Annual Survey of Earnings and Hours published in November 2013, and the producer price indices published in January 2014. The next update will be in January 2014 dependent on the publication of updated Annual Business Survey data for 2013.