



This annual publication presents estimates of UK Defence Inflation for the financial years 2005/06 to 2015/16.

The Defence inflation statistic measures the average change in pay and prices of goods and services that make up the Defence budget, with quality and quantity held constant. The main motivation for the development of a measure of Defence inflation was to inform parliamentary and national debate on Defence expenditure.

Key Points and Trends

- ▲ **3.9%** Defence inflation is 3.9% in 2015/16.
This is higher than the 0.8% seen in 2014/15 and the highest inflation rate since 2010/11.
 - ▲ **9.5%** Inflation in Defence labour costs in 2015/16 is the biggest driver of the higher rate of Defence inflation.
This year's rate of 9.5% compares to a labour cost inflation of 0.3% in 2014/15. This increase is largely driven by higher inflation in employer pension contributions.
 - ▲ **1.3%** Inflation in Defence contracts remains low in 2015/16.
Contract inflation remains low, but was 1.3% in 2015/16 compared to 1.1% in the previous year. The increased rate of inflation from 2014/15 is reflective of an upward trend in average foreign exchange rates from the previous year.
 - ▲ **3.8%** Cash office expenditure experienced a high rate of inflation in 2015/16.
Cash office expenditure experienced 3.8% inflation, which is the highest inflation rate since 2010/11. This is due to the depreciation of the Pound against the US Dollar, in which two-thirds of cash office expenditure was spent.
- The rate of Defence inflation was higher than both the GDP deflator and RPIX in 2015/16. Inflation in the GDP Deflator was 0.8% in 2015/16, while the Retail Prices Index excluding mortgage interest payments was 1.1%, both lower than the Defence inflation estimate of 3.9%.

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Introduction

The Defence inflation statistic measures the average change in pay and prices of goods and services that make up the Defence budget, with quality and quantity held constant.

This statistical notice presents estimates of Defence inflation for the financial years 2005/06 to 2015/16. The 2015/16 Defence inflation estimates utilise expenditure figures for the base year 2014/15.

What is Defence Inflation?

The estimates of Defence inflation capture inflation in the inputs to Defence. They reflect the mix of goods, labour and services bought each year and do not take account of productivity or efficiency improvements. Specifically, this means that to capture an overall measure of Defence inflation, the amount of money spent in the base year (in this report, 2014/15) is fixed and it is assumed that the same mix of goods will be purchased in the current year (2015/16), allowing changes in the price of goods, labour and services to be calculated.

Users and Uses of Defence Inflation estimates

The statistics have been used by academics for research purposes and by the government in making and monitoring policy. The key external users include the general public, media, Defence industry, academics, the National Audit Office and Parliament (in particular the House of Commons Defence Committee and Parliamentary Accounts Committee).

Many of the key users of the Defence inflation estimates are internal users within the MOD. The statistics are useful to the Department in planning for budget and Spending Round negotiations with HM Treasury, dealing with parliamentary interest in the Department's expenditure, assessing the effectiveness of commercial policy and allocating budgets.

Introduction (cont.)

Comparisons with General Inflation

It should be noted that Defence inflation is not **directly** comparable to measures of general inflation such as the Gross Domestic Product (GDP) deflator or the Retail Prices Index excluding mortgage interest payments (RPIX). This is because Defence inflation only takes into account the cost of Defence inputs, whereas RPIX and the GDP deflator measure changes in outputs i.e. the price of final products and services. In general, input measures tend to have higher growth than comparable output measures because they do not take into account productivity improvements, where the level of output for a given level of input increases over time.

An output measure of Defence inflation would require defining a unit of Defence outputs such as 'a unit of security' or a 'unit of stability'. This is not feasible at present. The currently calculated input measure for Defence inflation is therefore the best feasible measure to compare against the GDP deflator.

Although all comparisons with general inflation in this report are correct at the time of publication, it is possible that the Office for National Statistics (ONS) will make further revisions to the GDP deflator during the year. For the latest data users should refer to the ONS website: <http://www.ons.gov.uk/ons/index.html>

A National Statistics publication

The United Kingdom Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs;
- are well explained and readily accessible;
- are produced according to sound methods; and
- are managed impartially and objectively in the public interest.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

Summary Results

Defence inflation was **3.9%** in 2015/16.

The table below presents index numbers and year-on-year growth rates for the three main components of Defence expenditure - Defence contracts, labour costs and cash offices - and an overall Defence inflation measure that is a weighted average of all three. The weights are expressed as values out of 1000 and reflect the contribution each component makes to the overall measure of Defence inflation.

For key terms, symbols and methodology details please refer to the **Methodology, Glossary and Further Information** sections at the end of this report.

Table 1: Defence Inflation, 2005/06 to 2015/16

	Contracts		Labour Costs		Cash Offices		Defence Inflation	
<i>Weights</i>	670		315		15		1000	
Financial Year	Index & Growth Rate							
2004/05	100.0	-	100.0	-	100.0	-	100.0	-
2005/06	103.4	3.4%	105.6	5.6%	100.9	0.9%	104.1	4.1%
2006/07	106.9	3.4%	109.2	3.5%	102.2	1.4%	107.6	3.4%
2007/08	110.9	3.7%	113.9	4.3%	104.7	2.4%	111.8	3.9%
2008/09	115.5	4.2%	118.0	3.6%	114.4	9.3%	116.5	4.2%
2009/10	118.4	2.5%	122.6	4.0%	123.8	8.2%	120.2	3.2%
2010/11	122.9	3.8%	128.3	4.7%	135.8	9.7%	125.2	4.2%
2011/12	127.1	3.4%	132.6	3.4%	138.2	1.7%	129.4	3.4%
2012/13	129.8	2.2%	133.2	0.4%	139.8	1.2%	131.3	1.5%
2013/14	132.9	2.4%	135.2	1.5%	141.5	1.2%	134.1	2.1%
2014/15	134.4	1.1%	135.7	0.3%	139.8	-1.2%	135.2	0.8%
2015/16	136.1	1.3%	148.5	9.5%	145.1	3.8%	140.5	3.9%

Overall Defence Inflation

The 2015/16 estimate of Defence inflation is considerably higher than the previous year's figure (0.8%), and is the highest estimate since 2010/11. The same pattern is true for each of the main components of Defence inflation, with the inflation rates for contracts, labour costs and cash offices all increasing since last year.

The biggest driver for the increase in overall Defence inflation in 2015/16 is increased inflation in civilian and military labour costs, which increased to **9.5%** in 2015/16. The increased inflation in labour costs accounted for approximately 95% of the overall increase in Defence inflation. The primary reason for this was increases in employer pension contributions for both [civilian](#) and [military](#) personnel.

The slight increase in contract inflation had little impact on the overall Defence inflation rate. Additionally, although cash office inflation increased from -1.2% in 2014/15 to 3.8% in 2015/16, this had a negligible impact on the overall rate due to the relatively small amount of cash office expenditure.

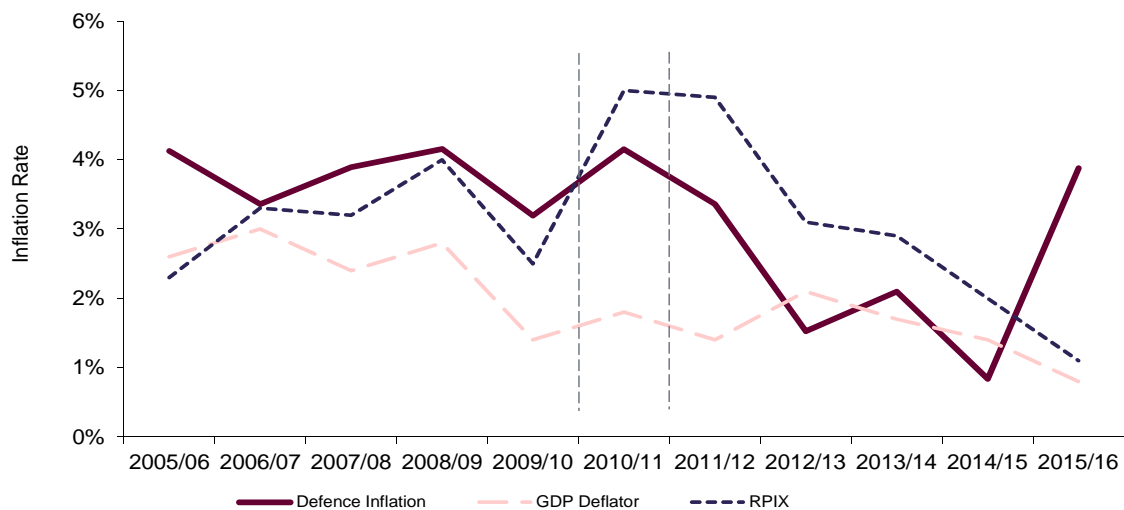
--- Dotted lines on tables indicate a break in the time series caused by a methodology change, meaning that comparisons with historical estimates should be viewed with caution. For details see the Methodology section on page 26.

Summary Results (cont.)

Inflation in the GDP Deflator was **0.8%** in 2015/16, and inflation in RPIX (a widely accepted proxy for UK general inflation) was **1.1%**. In 2015/16, Defence inflation was higher than both of these estimates, by 3.1 and 2.8 percentage points respectively.

The chart below shows the changing trend in the relationship between Defence inflation and general UK inflation over the last eleven years. For the first five years of the series, the Defence inflation measure was higher than inflation in the GDP deflator and RPIX. There was then a shift in the pattern, and Defence inflation dropped below RPIX, although it remained higher than the GDP deflator for two more years. In 2012/13, Defence inflation dropped to a lower rate than both the GDP deflator and RPIX for the first time. 2015/16 saw a big spike in Defence inflation and it is the first year since 2009/10 that it has been higher than both the GDP deflator and RPIX.

Figure 1: Defence Inflation and General Inflation, 2005/06 to 2015/16



Source: Inflation rates for RPIX and the GDP deflator from the Office for National Statistics

Components of Defence Inflation

Inflation in Defence contract expenditure increased to **1.3%** in 2015/16, from 1.1% in 2014/15. Last year's figure (2014/15) was affected by a large downward trend in the foreign exchange market. While the markets still displayed some volatility in 2015/16, the average exchange rate variation for contracts paid in foreign currencies was less negative, resulting in a slightly higher contract inflation rate.

Defence labour cost inflation was **9.5%** in 2015/16, compared with 0.3% in the previous year. The largest increase was for military labour cost inflation, which was 11.5% in 2015/16 compared with 0.4% in 2014/15. This was largely driven by inflation in employer pension contributions and, to a lesser extent, inflation in non-activity allowances. Civilian labour cost inflation has also shown an increase (1.4% in 2015/16 compared with 0.1% in 2014/15), again largely driven by increased inflation in employer pension contributions.

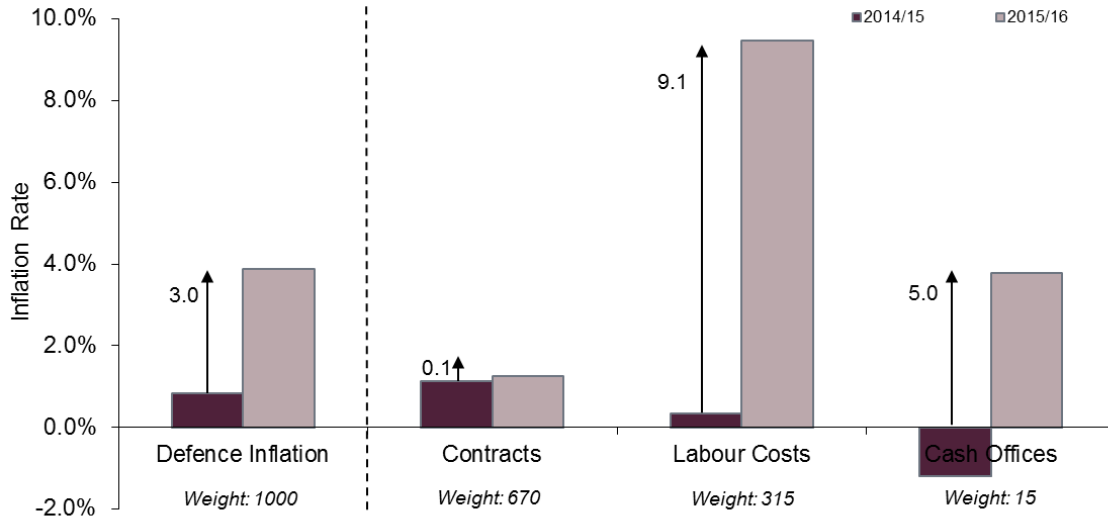
Inflation in cash office expenditure was **3.8%** in 2015/16, a large increase from -1.2% in 2014/15. Annual inflation rates are more volatile for this spending area than for labour costs or contracts, and it has a small weighting in the overall Defence inflation estimate. The 2015/16 rate of 3.8% is comparable with the year-on-year average of 3.5%.

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Summary Results (cont.)

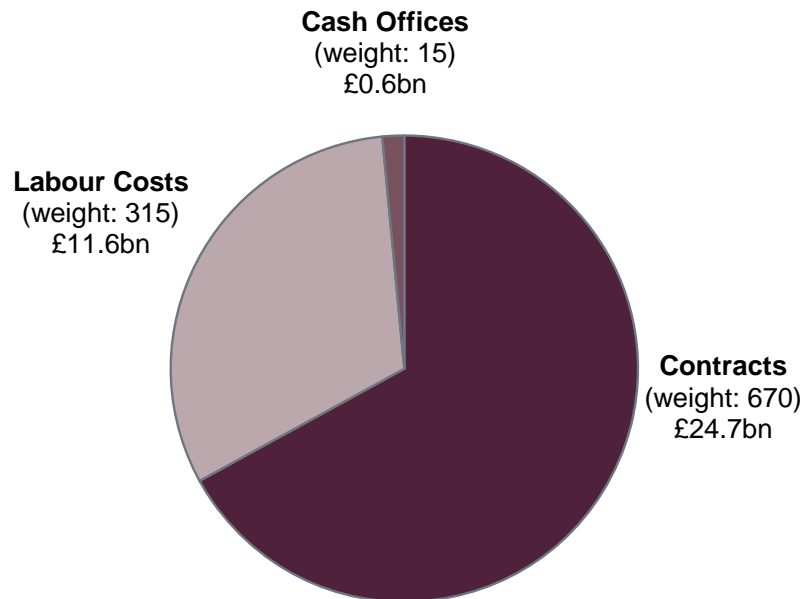
The chart below presents the percentage point changes in the key components of Defence inflation between 2014/15 and 2015/16 and the respective weight of each component.

Figure 2: Components of Defence Inflation¹, 2014/15 to 2015/16



The 2015/16 Defence inflation estimates use expenditure figures for the base year 2014/15, as shown in **Figure 3**. Expenditure on contracts accounts for two-thirds of the total expenditure captured within the 2014/15 Defence inflation measure, with labour costs accounting for nearly one third and cash offices for just under 2%.

Figure 3: Defence Expenditure for the base year 2014/15



1. Percentage changes in inflation rates are calculated from unrounded data

Summary Results (cont.)

The table below presents total expenditure on the three components of Defence inflation for the years 2004/05 to 2014/15. Expenditure in 2014/15 (which is the base year for the 2015/16 Defence inflation measure) was £36.8bn, a decrease of £273 million (0.7%) compared to 2013/14.

Table 2: Defence Inflation Expenditure by Category, 2004/05 to 2014/15

Inclusive of non-recoverable VAT at Current Prices (£ million)

	Contracts	Labour Costs	Cash Offices	Total
2004/05	17,065	11,313	1,008	29,386
2005/06	18,085	11,703	1,091	30,879
2006/07	18,352	11,896	1,139	31,387
2007/08	20,795	12,166	1,399	34,361
2008/09	23,653	12,598	1,186	37,438
2009/10	24,873	13,193	586	38,652
2010/11	24,567	13,453	592	38,611
2011/12	24,218	13,504	703	38,426
2012/13	24,452	12,647	708	37,806
2013/14	24,471	11,999	588	37,058
2014/15	24,652	11,577	557	36,785

Contracts

Key Findings

- Inflation in contract expenditure was 1.3% in 2015/16, which is an increase from the previous year (1.1%).
- Between 2005/06 and 2015/16, inflation in contract expenditure ranged from a low of 1.1% in 2014/15 to a high of 4.2% in 2008/09.
- In 2015/16, inflation was highest for high value firm price contracts (3.2%). This compares with inflation rates of 0.4% in fixed price contracts, 0.3% in high value miscellaneous contracts and 0.0% in low value contracts in 2015/16. With the exception of high value firm price contracts, inflation in all other contract types is lower than in the previous year.
- Inflation in non-equipment contracts (1.5%) was slightly higher than inflation in equipment (1.3%) contracts in 2015/16.
- The largest proportion of contract expenditure (13.4%) was associated with the aircraft and spacecraft industry. The average inflation rate for these contracts was 2.0% in 2015/16, up from 1.8% in the previous year.

Expenditure and Weights

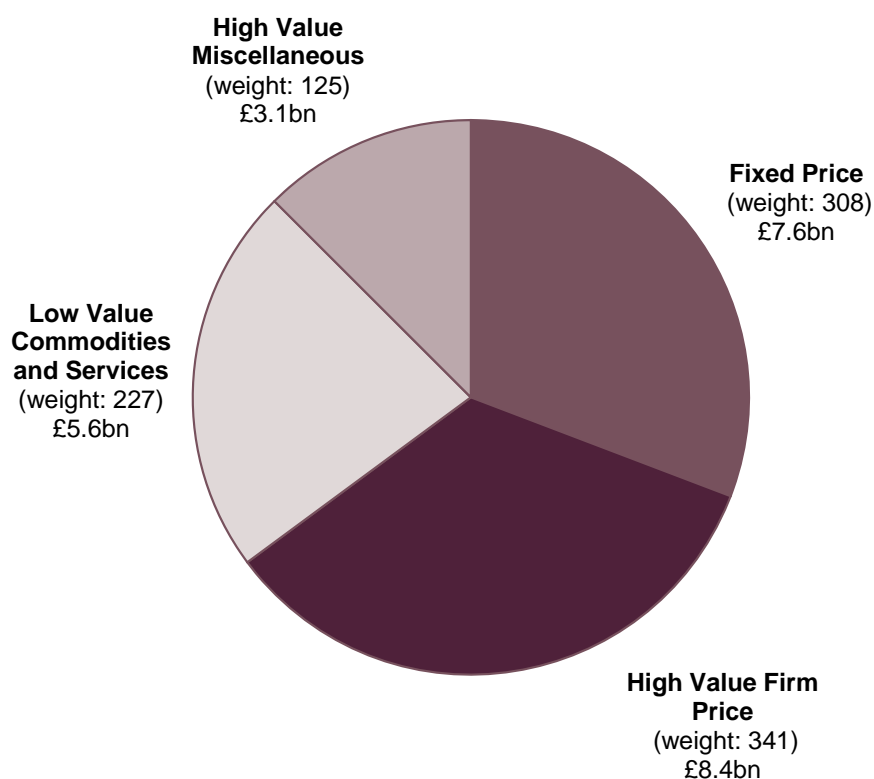
In 2014/15 the MOD had over 24,000 contracts with payments against them, accounting for £24.7bn (almost two thirds) of the Department's annual expenditure. Some of these contracts are for the provision of complex Defence equipment and support, and can last for decades; some are for off-the-shelf goods and services; and some are miscellaneous payments, such as those to Local Authorities and international collaborative projects.

MOD defines four sub-groups of contracts, which are described below, along with the total expenditure and number of contracts included in the 2015/16 Defence inflation measure (these figures therefore relate to the base year 2014/15). Please see the **Methodology** section for more detail about the different contract types. The proportion of total contract expenditure spent on each sub-group can also be seen in **Figure 4**.

High Value Firm Price Contracts	Fixed Price Contracts	High Value Miscellaneous Contracts	Low Value Commodities and Service Contracts
High value contracts with a non-variable inflation rate embedded in the contract price.	Contracts with an indexation adjustment linked to real-time changes in specific ONS price indices, as defined in a Variation of Price (VoP) clause.	High value miscellaneous contracts relate to a specific payment method employed by the MOD for running service items such as the provision of utilities.	Low value contracts and miscellaneous payments: those which have an annual payment that falls in the bottom 25% of contracts after ranking by expenditure.
Total expenditure: £8.4bn	Total expenditure: £7.6bn	Total expenditure: £3.1bn	Total expenditure: £5.6bn
Number of contracts: 114	Number of contracts: 171	Number of contracts: 29	Number of contracts: 23,736

Contracts (cont.)

Figure 4: Contract Expenditure for the base year 2014/15



Inflation Rates across Defence Contracts

The methodology for estimating inflation in Defence contracts relies on specific information received from project teams within MOD, and on official inflation rates that are published by the Office for National Statistics for a wide range of UK industries (see **Methodology** section for further details on how inflation is estimated for each contract type).

A further adjustment is made to take account of the fact that around 14% of MOD contract spend was in foreign currencies (compared with 15% in the previous year). In 2015/16, a new methodology was employed to calculate this adjustment, which involved extracting foreign currency expenditure at contract level and using average exchange rates for the 2015/16 financial year. Unique adjustments were applied individually to each contract type and are presented in **Table 3** (see **Methodology** section for further details on how the adjustments were calculated). The overall measure of contract inflation, and thus the overall Defence inflation estimate, therefore captures the inflationary effect of paying for some contracts in foreign currencies.

Table 3: Impact of paying contracts in foreign currencies, 2015/16

Contract Type	2015/16
	Contract Adjustment
High Value Firm Price	0.1%
Fixed Price	-0.3%
Low Value Commodities and Services	0.2%
High Value Miscellaneous	-0.5%

Contracts (cont.)

Table 4 presents the inflation rates for all four contract types, and the overall contract inflation rate for the past eleven years.

Table 4: Defence Inflation – Contracts, 2005/06 to 2015/16

Contract Type	High Value Firm Price		Fixed Price ¹		Low Value Commodities and Services		High Value Miscellaneous		Contracts	
<i>Weights</i>	341		308		227		125		1000	
Financial Year	Index and Growth Rate									
2004/05	100.0	-	100.0	-	100.0	-	100.0	-	100.0	-
2005/06	102.9	2.9%	104.2	4.2%	103.2	3.2%	103.3	3.3%	103.4	3.4%
2006/07	106.2	3.2%	108.2	3.8%	106.8	3.4%	106.6	3.2%	106.9	3.4%
2007/08	109.7	3.3%	113.1	4.5%	110.7	3.7%	109.7	2.9%	110.9	3.7%
2008/09	114.0	4.0%	117.8	4.2%	115.5	4.3%	114.7	4.5%	115.5	4.2%
2009/10	119.2	4.5%	119.4	1.3%	117.6	1.8%	116.9	2.0%	118.4	2.5%
2010/11	124.2	4.2%	123.9	3.8%	121.2	3.1%	121.4	3.8%	122.9	3.8%
2011/12	128.4	3.3%	128.5	3.7%	124.7	2.9%	125.8	3.6%	127.1	3.4%
2012/13	132.7	3.4%	130.7	1.7%	126.4	1.3%	127.7	1.5%	129.8	2.2%
2013/14	132.6	3.3%	131.6	2.4%	126.7	1.6%	128.1	1.9%	130.1	2.4%
2014/15	135.7	2.4%	132.5	0.7%	126.9	0.2%	129.0	0.7%	131.6	1.1%
2015/16	140.1	3.2%	133.0	0.4%	127.0	0.0%	129.5	0.3%	133.2	1.3%

High Value Firm Price Contracts

Typically, high value firm inflation rates will have been set by looking at long-term inflation of a relevant price index. As a result, inflation within high value firm price contracts tends to reflect longer-term inflation rates rather than responding to year-on-year changes.

Expenditure on high value firm price contracts accounted for just over one third of the 2015/16 Defence inflation measure for contracts. High value firm price contracts had an inflation rate of 3.2% in 2015/16, up from 2.4% last year. This is higher than the inflation rates for all other contract types in 2015/16 and is the only contract type that has exhibited an increase from 2014/15. The reason for the increase was the upward trend in specific foreign exchange rates – approximately 60% of foreign currency expenditure in high value firm price contracts was in US Dollars, which had appreciated against the Pound in 2015/16. As such, a positive adjustment of 0.1 was applied to the high value firm inflation rate. For comparison, in 2014/15 an adjustment of -0.7 was applied to our estimate of high value firm inflation.

Fixed Price Contracts

Inflation for fixed price contracts tends to be more volatile than for firm price contracts, as it ‘tracks’ the year-on-year inflation of relevant price indices.

Expenditure on fixed price contracts accounts for just under one third of the 2015/16 Defence inflation measure for contracts. The inflation rate for these contracts was 0.4% in 2015/16, which was lower than the 2014/15 inflation rate (0.7%).

MOD uses a range of price indices in fixed price contracts. A third of expenditure on fixed price contracts included in this year’s measure was linked to the Retail Price Index excluding mortgage interest payments (RPIX). Inflation in RPIX fell from 2.0% in 2014/15 to 1.1% in 2015/16, which was a contributing factor in the decreased inflation rate in fixed price contracts. Additionally, a number of fixed price contracts are linked to average earnings indices, which also exhibited decreased inflation in 2015/16.

1. Includes defence fuel contracts

--- Dotted lines on tables indicate a break in the time series caused by a methodology change, meaning that comparisons with historical estimates should be viewed with caution. For details see the Methodology section on page 26.

Contracts (cont.)

Low Value Commodities and Service Contracts

The vast majority of Defence contracts fall into this category but because they are low value, they account for less than a quarter of contract expenditure. The inflation rate for these contracts was 0.0% in 2015/16, which is 0.2 percentage points lower than the inflation rate in 2014/15.

Inflation rates for low value contracts are estimated using price indices relevant to the industry sector each contract is placed with, where this information is available. The low inflation rate in 2015/16 is a result of lower inflation in certain industry sectors; 'Petroleum and Nuclear Fuels' and 'Gas' both exhibited significant deflation in 2015/16, bringing down the overall inflation rate for low value contracts to 0.0%.

High Value Miscellaneous Contracts

Expenditure on high value miscellaneous contracts accounts for around one eighth of the 2015/16 Defence inflation measure for contracts. The inflation rate for these contracts was 0.3% in 2015/16, 0.4 percentage points lower than the inflation rate in 2014/15.

Inflation for high value miscellaneous contracts is estimated using relevant price indices and RPIX. The lower inflation rate in this contract type in 2015/16 is a result of decreased inflation in RPIX and certain industry sectors. The low inflation rate is also a result of approximately 43% of high value miscellaneous expenditure being in foreign currencies, with the largest proportion of that being Euros. The Pound appreciated strongly against the Euro in 2015/16, resulting in an adjustment of -0.5 percentage points being applied to the estimated high value miscellaneous inflation rate.

Inflation by Industry

The following section presents inflation rates for equipment and non-equipment contracts by industry. This analysis includes high value firm price, fixed price and most low value commodities and service contracts. It is not possible to include high value miscellaneous contracts and around a fifth of low value contract expenditure, as these contracts do not have the necessary industry information attached to them. For more details, refer to the **Methodology** section. Note that an adjustment is applied to our estimates of industry inflation rates to capture the inflationary effect of paying for some contracts in foreign currencies.

Table 5 presents inflation in contract expenditure for the ten industries with the highest expenditure in 2015/16. Four of these ten industries relate primarily to equipment contracts and six relate primarily to non-equipment contracts.

The largest industries in terms of Defence expenditure are Aircraft and spacecraft (13.4% of expenditure), Legal, Accounting and Marketing (10.0% of expenditure) and Ships (9.5% of expenditure). Inflation rates for all of the ten largest industries were higher or the same in 2015/16 than in 2014/15. These increases are reflective of a less negative average exchange rate variation in contracts containing foreign currency expenditure than the previous year.

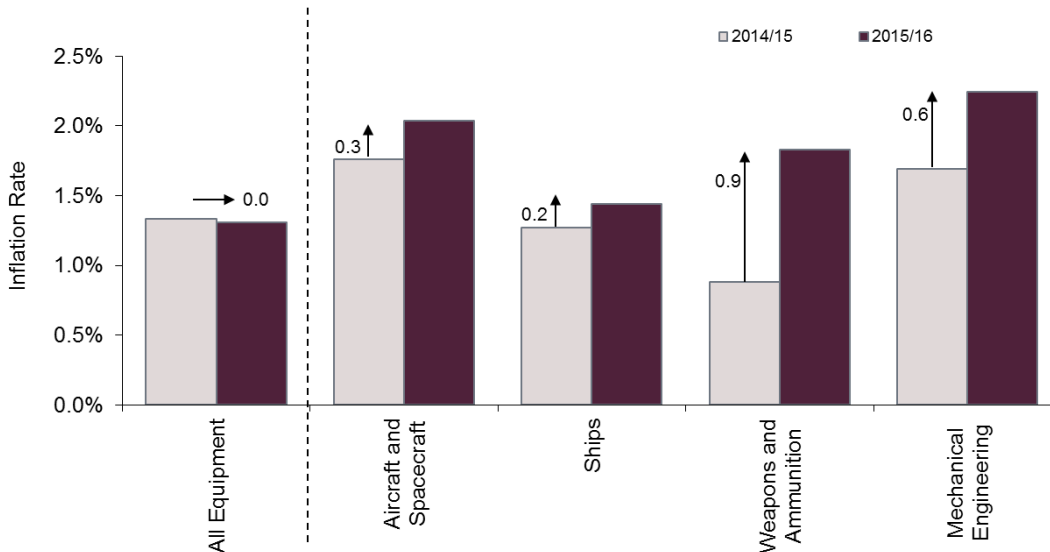
Contracts (cont.)

Table 5: Contract Inflation for the ten industries¹ with the highest expenditure

Industry	Weights	Inflation rate	
		2014/15	2015/16
Aircraft and Spacecraft	134	1.8%	2.0%
Ships	95	1.3%	1.4%
Weapons and Ammunition	54	0.9%	1.8%
Mechanical Engineering	49	1.7%	2.2%
Other Equipment	77	0.7%	-1.1%
All Equipment	410	1.3%	1.3%
Legal, Accounting & Marketing	100	1.5%	1.9%
Construction	58	2.6%	3.0%
Computer Activities	55	1.2%	1.3%
Water & Air Transport	39	2.8%	2.8%
Real Estate	34	1.2%	1.7%
Telecommunications	33	0.2%	0.2%
Other Non-Equipment	120	-0.1%	0.0%
All Non-Equipment	422	1.1%	1.5%
Excluded contracts ²	168	-	

Figure 5 shows the percentage point changes in inflation rate from 2014/15 to 2015/16 for the industries with the highest expenditure within equipment contracts. All four of these industries showed an increase in their inflation rates, whilst the overall inflation rate for equipment contracts remained the same.

Figure 5: Inflation Rates of Industries with the Highest Expenditure within Equipment Contracts³, 2014/15 to 2015/16



1. The ten industries with the highest expenditure have changed from 2014/15 to 2015/16, with Telecommunications replacing Wholesale & Retail Trade in the top ten.
2. High Value Miscellaneous contracts and Low Value contracts without an industry classification assigned to them are not included in the industry analysis.
3. Percentage changes in inflation rates are calculated from unrounded data

Contracts (cont.)

Figure 6 shows the distribution of expenditure in 2014/15 within equipment contracts and the associated 2015/16 inflation rates for these industry groups. In 2015/16, the average inflation rate for equipment contracts was 1.3%, which is the same as the previous year.

Figure 6: Distribution of Expenditure on Equipment Contracts by Industry

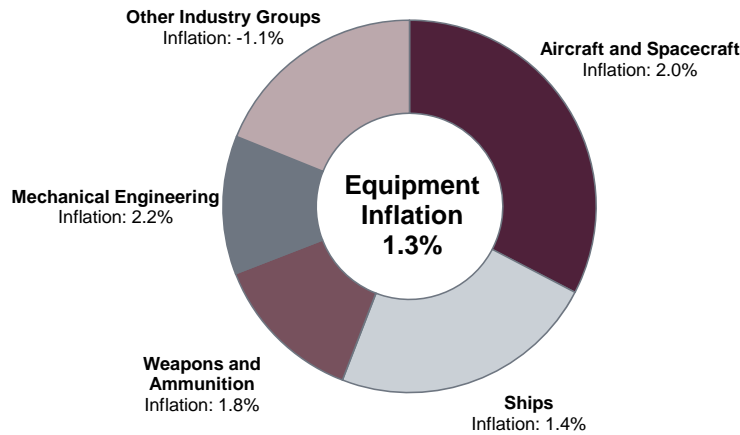
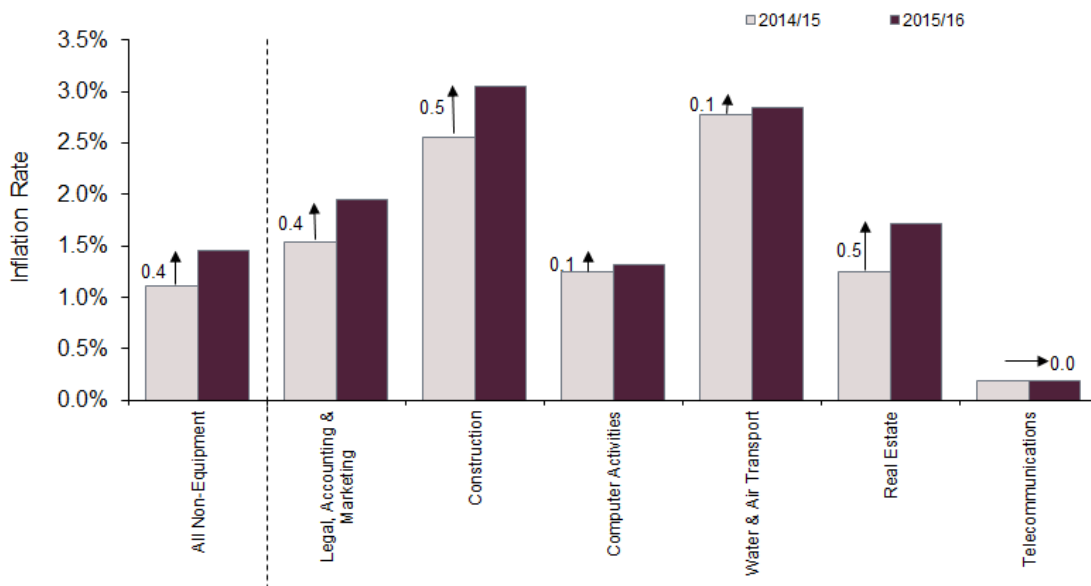


Figure 7 shows the changes in inflation rate from 2014/15 to 2015/16 for the industries with the highest expenditure within non-equipment contracts. All industries showed an increase in inflation, apart from telecommunications, which remained unchanged from the previous year.

Figure 7: Inflation Rates of Industries with the Highest Expenditure within Non-Equipment Contracts¹, 2014/15 to 2015/16

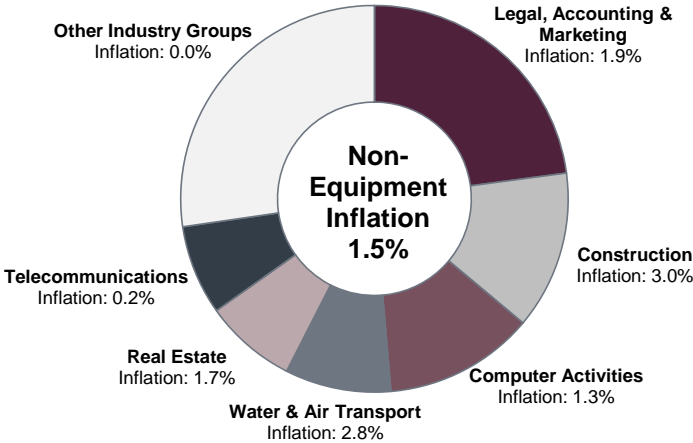


1. Percentage changes in inflation rates are calculated from unrounded data

Contracts (cont.)

Figure 8 shows the distribution of expenditure in 2014/15 within non-equipment contracts and the associated 2015/16 inflation rates for these industry groups. Inflation for non-equipment contracts was 1.5% in 2015/16 compared to 1.1% the previous year.

Figure 8: Distribution of Expenditure on Non-Equipment Contracts by Industry



Labour Costs

Key Findings

- Inflation in labour cost expenditure increased to 9.5% in 2015/16, and was the key driver of the higher overall rate of Defence inflation in 2015/16 compared with 2014/15.
- The largest increase in labour cost inflation was for military personnel, with an inflation rate of 11.5% in 2015/16 compared with 0.4% in 2014/15. This increase was driven largely by inflation in employer pension contributions (55% in 2015/16 compared with 1.0% in 2014/15). To a lesser extent, higher inflation in non-activity allowances also contributed to the increased military labour cost inflation. Inflation in military basic and specialist pay was lower than last year (0.8% in 2015/16 compared with 1.0% in 2014/15).
- Civilian labour cost inflation has also increased (1.4% in 2015/16 compared with 0.1% in 2014/15). This increase is largely driven by inflation in employer pension contributions (11.2% in 2015/16 compared with -0.4% in 2016/17). Inflation in civilian gross pay has increased to 0.6%, compared with 0.3% in 2014/15.

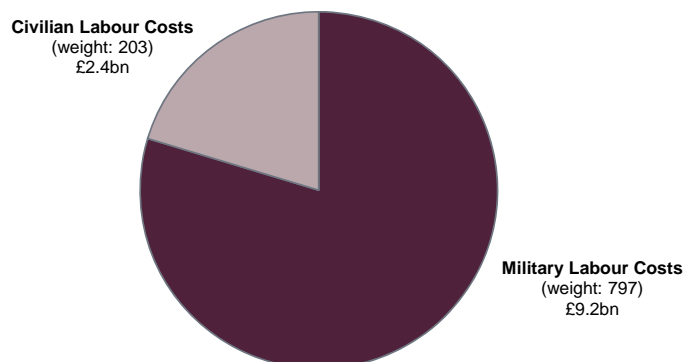
Figure 9 presents inflation rates for military and civilian labour costs from 2005/06 to 2015/16, and the respective weight each has on the overall inflation rate in labour costs.

Figure 9: Military and Civilian Labour Cost Inflation, 2005/06 to 2015/16



Expenditure on labour costs accounts for one third of the total expenditure captured within the 2015/16 Defence inflation measure. For the 2015/16 estimates, 80% of this expenditure was on military labour costs and 20% was on civilian labour costs (**Figure 10**).

Figure 10: Labour Cost Expenditure for the base year 2014/15



Labour Costs (cont.)

For both military and civilian personnel, the inflation rate captures the growth in average labour costs, including gross pay, employer pension contributions (SCAPE), employer National Insurance contributions (ERNIC) and Travel and Subsistence (T&S). It implicitly includes all paid sickness, and paternity or maternity leave. The inclusion of all these costs captures the total inflationary impact to the Department of employing personnel, in addition to changes in their pay.

Labour Costs

Table 6 shows the overall Defence labour cost inflation rate, and separate inflation rates for military and civilian labour costs.

Table 6: Defence Inflation – Labour Costs, 2005/06 to 2015/16

Personnel Type <i>Weights</i>	Military Labour Costs <i>797</i>	Civilian Labour Costs <i>203</i>	Labour Costs <i>1000</i>			
Financial Year	Index and Growth Rate					
2004/05	100.0	-	100.0	-	100.0	-
2005/06	105.0	5.0%	107.4	7.4%	105.6	5.6%
2006/07	108.5	3.3%	111.6	3.9%	109.2	3.5%
2007/08	113.4	4.5%	115.5	3.5%	113.9	4.3%
2008/09	117.1	3.3%	120.7	4.5%	118.0	3.6%
2009/10	122.2	4.3%	124.0	2.7%	122.6	4.0%
2010/11	128.2	4.9%	128.5	3.6%	128.3	4.7%
2011/12	133.2	3.9%	130.1	1.2%	132.6	3.4%
2012/13	133.8	0.5%	130.4	0.2%	133.2	0.4%
2013/14	136.2	1.8%	131.1	0.5%	135.2	1.5%
2014/15	136.8	0.4%	131.2	0.1%	135.7	0.3%
2015/16	152.5	11.5%	133.1	1.4%	148.5	9.5%

Due to the different elements that make up military and civilian labour costs, such as differences in pay and allowances, it is usual for the two inflation rates to differ from each other.

--- Dotted lines on tables indicate a break in the time series caused by a methodology change, meaning that comparisons with historical estimates should be viewed with caution. For details see the Methodology section on page 26.

Labour Costs (cont.)

Military Labour Costs

Inflation in military pay and allowances is driven primarily by recommendations made by the Armed Forces' Pay Review Body (AFPRB) but also by Government policy decisions on pensions and National Insurance.

Inflation in military labour cost expenditure was 11.5% in 2015/16 (**Table 7**), 11.1 percentage points higher than the 2014/15 inflation rate of 0.4% and the highest inflation rate in the series so far. The key driver was higher inflation in employer pension contributions as a result of increases in the contribution rates¹. There was also higher inflation in activity and non-activity allowances in 2015/16 compared with 2014/15, although inflation in pay, national insurance contributions and T&S costs were all lower.

Table 7: Defence Inflation – Military Labour Costs, 2005/06 to 2015/16

	Pay and Allowances				Employer Pension Contributions	Employer National Insurance Contributions	Travel and Subsistence	All Military Labour Costs
	Of which:	Basic Pay and Specialist Pay ²	Non-Activity Allowances	Activity Allowances ³				
Weights	668	630	19	19	202	53	78	1000
Financial Year	Growth Rate							
2005/06	2.9%	3.0%	-2.7%	5.0%	18.1%	2.6%	2.4%	5.0%
2006/07	3.3%	3.1%	9.2%	7.5%	3.1%	5.4%	2.7%	3.3%
2007/08	4.9%	3.6%	36.2%	14.2%	3.6%	4.0%	3.2%	4.5%
2008/09	3.0%	3.7%	-11.4%	2.6%	3.8%	1.5%	5.4%	3.3%
2009/10	3.1%	2.8%	12.1%	1.8%	10.7%	2.5%	3.7%	4.3%
2010/11	4.2%	2.8%	17.7%	32.4%	9.4%	3.9%	3.6%	4.9%
2011/12	0.9%	0.7%	-1.7%	8.7%	15.4%	4.3%	4.3%	3.9%
2012/13	0.3%	0.2%	-2.7%	4.6%	0.2%	1.3%	1.8%	0.5%
2013/14	2.0%	1.4%	20.8%	1.2%	1.4%	1.0%	1.8%	1.8%
2014/15	0.1%	1.0%	-22.1%	0.3%	1.0%	0.2%	1.4%	0.4%
2015/16	0.8%	0.8%	3.4%	0.6%	55.0%	2.6%	0.4%	11.5%

The key reasons for the changes in military labour cost inflation are described below:

Basic and specialist pay: Inflation was 0.8% in 2015/16, compared with 1.0% in 2014/15.

- Inflation in basic pay was lower in 2015/16, although personnel were still in receipt of a 1% uplift in base pay as they were in 2014/15. In addition, military personnel who are not already at the top of their pay scale received normal incremental pay progression. The increases in pay and pay progression were offset by some deflation experienced by the MOD due to the mix of military personnel leaving the department, joining the department and being newly promoted into grade.
- Deflation occurs if those who leave were on a higher than average salary for their pay band, as the average salary for the current year will be lowered by them leaving. New starters and newly promoted personnel will likely be in receipt of lower salaries in their pay band. When analysing the grade/rank groupings that had the biggest impact on the overall pay inflation rate, there were a higher proportion of new starters and newly promoted personnel in 2015/16 than in 2014/15, which helps to explain the lower inflation rate for basic and specialist pay.
- The inflation rate for specialist pay was set at 1% in line with current policy set out in the [Armed Forces Pay Review Body \(AFPRB\)](#) report. Specialist pay provides a very small weight to the overall calculation of basic and specialist pay.

1. Military rates can be found [here](#) (paragraph 3.2 on page 6 of the report); Civilian rates can be found [here](#).

2. Includes reservists and cadets pay

3. From 2015/16 the methodology for estimating inflation in activity allowances includes Op HERRICK drawdown allowance. This is a very small change that has no impact on the activity allowances inflation rate, or the overall military labour costs figure.

--- Dotted lines on tables indicate a break in the time series caused by a methodology change, meaning that comparisons with historical estimates should be viewed with caution. For details see the Methodology section on page 26.

Labour Costs (cont.)

Non-activity allowances: These include education allowances and committal and retention allowances. Inflation was 3.4% in 2015/16 compared with -22.1% in 2014/15. This large swing was driven by inflation in committal and retention allowances. In 2014/15, there was a large decrease in the use of financial incentives by the Royal Navy, resulting in a high rate of deflation in the previous year. The expenditure on these incentives increased in 2015/16, leading to increased inflation rate. Non-activity allowances account for only 2% of military labour costs but the large swing in the inflation rate accounts for some of the increase in overall military labour costs inflation.

Activity allowances: The overall inflation rate in activity allowances was 0.6%. These allowances include operational allowances, separation allowances and language awards. For most of the activity allowances there were no changes to policy in 2015/16, resulting in no inflation. The one exception was Longer Separation Allowance (LSA), which was subject to a 1% increase at all levels.

Employer pension contributions: Inflation was 55.0% in 2015/16, compared with 1.0% in 2014/15. There were large increases in [pension contributions](#) paid by the MOD from the previous year; the rates were increased from 42.8% to 53.4% of pensionable pay for Officers and from 30.8% to 52.0% of pensionable pay for Other Ranks. Factoring in these increases with the increases in pay has resulted in significant inflation in pension contributions.

Employer National Insurance contributions (ERNIC): Inflation is driven by ERNIC rates set by HM Revenue and Customs (HMRC). If there were no changes in ERNIC rates, we would expect inflation in ERNIC to be the same as the rate of inflation in pay. In 2015/16, there were increases in the lower earnings limit and secondary threshold for ERNIC contributions. Additionally, from April 15 the Government introduced a new policy to abolish ERNIC for personnel aged under 21 years old and earning less than the Upper Second Threshold. Due to there being a large number of military personnel who satisfied these criteria, the department paid less in ERNIC and inflation in ERNIC was negative (-2.6%).

Travel and subsistence (T&S): Inflation for travel and subsistence in the UK is estimated using relevant ONS indices, most of which experienced lower inflation in 2015/16 than in 2014/15. In particular, RPIX, which is attributed to 29% of UK T&S expenditure, reduced from 2.0% to 1.1%. Overseas T&S inflation is estimated using a combination of foreign exchange rates and consumer price indices (CPIs). Around 90% of overseas expenditure was attributed to spending in Euros, against which there was deflation in 2015/16. Inflation in UK and overseas expenditure combined resulted in overall deflation of -0.4%, which was the lowest rate seen since estimates began in 2005/06.

Labour Costs (cont.)

Civilian Labour Costs

Inflation in civilian labour cost expenditure was 1.4% in 2015/16, which is 1.3 percentage points higher than the previous year. The key driver for the higher level of inflation in 2015/16 is inflation in employer pension contributions. Inflation in civilian gross pay has increased to 0.6%, 0.3 percentage points higher than in 2014/15.

Table 8: Defence Inflation – Civilian Labour Costs, 2005/06 to 2015/16

	Pay and Allowances		Locally Engaged Civilian Pay	Royal Fleet Auxiliary Gross Pay ²	Employer Pension Contributions	Employer National Insurance Contributions	Travel and Subsistence	All Civilian Labour Costs
	of which:	Gross Pay ¹						
<i>Weights</i>	793	686	78	29	115	51	42	1000
<i>Financial Year</i>	<i>Growth Rate</i>							
2005/06	4.1%	4.0%	5.3%	2.5%	43.4%	3.6%	2.1%	7.4%
2006/07	3.5%	3.3%	4.8%	3.0%	7.3%	4.0%	2.7%	3.9%
2007/08	3.7%	3.7%	4.3%	2.6%	3.6%	0.7%	3.9%	3.5%
2008/09	4.8%	4.0%	11.0%	2.6%	3.6%	2.9%	5.0%	4.5%
2009/10	3.4%	2.8%	7.8%	3.2%	-0.8%	-0.9%	3.0%	2.7%
2010/11	3.4%	3.9%	0.6%	1.9%	3.8%	5.6%	4.6%	3.6%
2011/12	1.0%	0.6%	4.2%	1.0%	0.4%	2.7%	5.0%	1.2%
2012/13	0.0%	0.0%	0.1%	0.7%	0.5%	1.3%	2.7%	0.2%
2013/14	0.5%	0.3%	1.8%	0.2%	0.5%	-0.4%	2.2%	0.5%
2014/15	0.2%	0.3%	-1.2%	0.7%	-0.4%	-0.7%	1.7%	0.1%
2015/16	0.2%	0.6%	-4.9%	2.7%	11.2%	-0.1%	0.2%	1.4%

The key reasons for the changes in civilian labour cost inflation are described below:

Gross pay: Inflation was 0.6% in 2015/16, increasing by 0.3 percentage points since 2014/15.

- The inflation rate in gross pay is higher than the previous two years, despite this being the third successive year of the Department spending 1% of its civilian pay bill on the annual pay award for all civilian staff below the Senior Civil Service (as per the Treasury's pay guidance).
- The increased rate is largely as a result of the MOD paying out a higher amount on pay awards in 2015/16 than in 2014/15. 2015/16 was the first year in which DE&S were given delegated responsibility to award their staff different Performance Awards to MOD Main personnel and they made the decision to award a higher percentage of their staff a Performance Award than the rest of MOD.
- One of the reasons that civilian pay inflation is lower than for military personnel is that pay progression does not apply to civilian pay.
- A leavers and joiners effect is seen for civilian personnel as well as for military. MOD has experienced some deflation in pay to counterbalance the 1% pay increase, because staff who leave the Department are typically paid higher on average than those who join (even within the same pay band). As with military personnel, this is a complex effect which varies from year to year. The leavers and joiners effect in 2015/16 is less negative than the previous year although there is a higher proportion of leavers and joiners than in 2014/15 – consequently, it still has a similar deflationary effect on the gross pay estimate.

The inflation rates for all other elements of civilian labour costs were higher in 2015/16 than in 2014/15, with the exception of Locally Engaged Civilian (LEC) Pay and Travel and Subsistence.

1. Gross pay includes overtime, allowances and non-consolidated performance related pay award inflation.

2. RFA Gross pay includes permanent allowances.

3. --- Dotted lines on tables indicate a break in the time series caused by a methodology change, meaning that comparisons with historical estimates should be viewed with caution. For details see the Methodology section on page 26.

Labour Costs (cont.)

Locally Engaged Civilian (LEC) Pay: Inflation in LEC pay is estimated using a combination of foreign exchange rates, overseas average earnings indices and Consumer Price Indices (CPIs) for the countries where MOD employs Locally Engaged personnel. Inflation in LEC pay has decreased since 2014/15, to -4.9% and has experienced deflation for a second consecutive year. The lower rate in 2015/16 compared to last year is due to fact that the majority of LECs are based in countries where Euros are the local currency, against which the Pound appreciated in 2015/16. Additionally, inflation in CPIs in most countries where LECs are based was lower in 2015/16.

Royal Fleet Auxiliary (RFA) Gross Pay: Inflation for RFA personnel was 2.7% in 2015/16, which was higher than the rate of inflation in gross pay for other civilians. As opposed to other civilian personnel, RFA personnel are entitled to advancement in pay which may explain the higher rate of pay inflation. RFA pay has a very small weighting in the overall civilian labour cost figure.

Employer pension contributions: In 2015/16, there were increases to the rates paid by the MOD in [pension contributions](#) (as a percentage of civilian employees' salaries). There are four separate payment bands based on earnings and all four payment bands experienced an increase in the rates paid by the MOD. The largest increases were in the first two bands, with the Band 1 rate increasing from 16.7% to 20% and the band 2 rate increasing from 18.8% to 20.9%. The majority of personnel (approximately 90%) sit in the first two bands, which resulted in inflation of 11.2% in pension contributions.

Employer National Insurance contributions (ERNIC): Inflation is driven by ERNIC rates set out by HM Revenue and Customs (HMRC). In 2015/16, there were increases in the Lower Earnings Limit and the Secondary Threshold for ERNIC contributions, meaning that the department paid less in ERNIC, particularly for lower-earning personnel. As the rate of inflation in civilian pay was lower than the percentage increase in the ERNIC rates, the overall ERNIC inflation measure for civilian personnel was deflation of -0.1% in 2015/16. The introduction of the policy to abolish ERNIC for personnel aged under 21 years old and earning below the Upper Secondary Threshold has little impact on civilian personnel due to the age profile of the civilian workforce.

Travel and subsistence (T&S): This includes travel and subsistence costs in both the UK and overseas. Inflation in the UK is calculated using relevant ONS indices. RPIX is used to estimate inflation for personnel movement, which equates to almost one quarter of UK civilian T&S expenditure. The inflation rate for RPIX reduced from 2.0% in 2014/15 to 1.1% in 2015/16. In addition to this, there was a lower rate of inflation in overseas T&S costs due to the appreciation of the Pound against a number of foreign currencies, particularly the Euro (which accounts for the majority of overseas T&S expenditure). These were the key drivers for an overall lower rate of inflation in T&S costs (0.2%) in 2015/16.

Cash Office Expenditure

Key Findings

- Inflation in cash office expenditure was **3.8%** in 2015/16.
- Between 2005/06 and 2015/16, inflation in cash office expenditure averaged 3.5% year-on-year growth, but it has been volatile over this period.
- Inflation within cash offices was 7.4% for US Dollars and -6.5% for Euros in 2015/16.

Cash Offices

Cash Offices operate in British embassies and MOD bases around the world and are responsible for maintaining imprest accounts, and making payments to personnel which cannot be made by other means.

Imprest accounts are used to make payments in local currency or Great British Pounds to personnel. These include payments to overseas units with non-sterling bank accounts, payments to operational units overseas and payments to HM Ships and RFAs afloat. Contractors are not normally paid through imprest accounts.

Cash office expenditure in 2014/15 was £0.6 billion, accounting for just under 2 per cent of the total expenditure captured within the Defence inflation measure in 2015/16. The inflation rates within cash offices capture both the inflation due to changes in currency exchange rates, and domestic inflation in the relevant country. Due to the low proportion of expenditure on cash offices, its inflation rate has very little impact on the overall Defence inflation measure.

Table 9 presents inflation in cash office expenditure over the period 2005/06 to 2015/16.

Table 9: Defence Inflation - Cash Offices, 2005/06 to 2015/16

Currency	Cash Offices - US Dollar		Cash Offices - Euro		Cash Offices - Other		Cash Offices	
<i>Weights</i>	662		167		172		1000	
Financial Year	Index and Growth Rate							
2004/05	100.0	-	100.0	-	100.0	-	100.0	-
2005/06	95.9	-4.1%	101.5	1.5%	105.5	5.5%	100.9	0.9%
2006/07	94.1	-1.9%	106.2	4.6%	106.8	1.2%	102.2	1.4%
2007/08	96.4	2.5%	107.4	1.0%	110.9	3.9%	104.7	2.4%
2008/09	102.8	6.7%	113.5	5.7%	133.4	20.3%	114.4	9.3%
2009/10	111.4	8.3%	121.2	6.8%	147.1	10.3%	123.8	8.2%
2010/11	121.7	9.2%	136.7	12.7%	158.0	7.4%	135.8	9.7%
2011/12	122.1	0.4%	142.6	4.3%	161.9	2.5%	138.2	1.7%
2012/13	125.5	2.8%	137.8	-3.4%	167.0	3.2%	139.8	1.2%
2013/14	126.4	0.7%	144.1	4.6%	166.2	-0.5%	141.5	1.2%
2014/15	126.3	-0.1%	134.2	-6.8%	162.7	-2.1%	139.8	-1.2%
2015/16	135.6	7.4%	125.5	6.5%	162.7	0.0%	145.1	3.8%

Cash Office Expenditure (cont.)

In 2015/16, inflation in cash office expenditure increased to 3.8%, the highest inflation rate since 2010/11. Over the eleven year period, inflation in cash offices has ranged from a high of 9.7% in 2010/11 to a low of -1.2% in 2014/15, with an average of 3.5%.

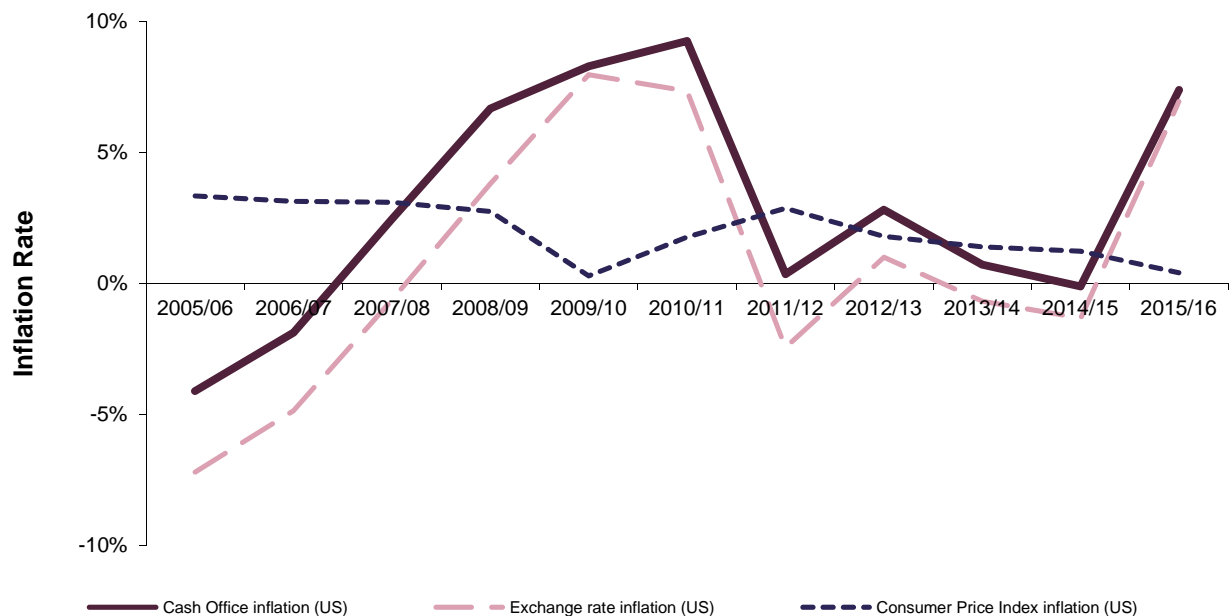
Broadly speaking, the rate of inflation for cash offices is driven by the inflation rates within countries where MOD spends US Dollars and Euros - the two currencies which contribute most to the total level of foreign currency spend - and movements in the exchange rates of these currencies against sterling.

Cash Offices – US Dollars and Euros

In 2014/15 (the base year for the 2015/16 inflation measure) around two-thirds of cash office expenditure was spent in US Dollars, with 17% spent in Euros and 17% spent in other currencies. In 2015/16, the inflation rates for cash office expenditure in US Dollars and Euros were **7.4%** and **-6.5%** respectively.

Figure 11 shows the relationship between the exchange rate for US Dollar and the US Consumer Price Index (CPI). Between 2005/06 and 2010/11 there was a steady increase in US Dollar expenditure inflation. There was a considerable decrease in US Dollar expenditure inflation in 2011/12, driven by the appreciation of sterling against the US Dollar. Since 2011/12 the inflation rate in US Dollar expenditure had remained at a relatively low level until the current year (2015/16), when there was significant depreciation of sterling against the US Dollar.

Figure 11: Inflation in Cash Offices on US Dollars, 2005/06 to 2015/16



Source: Inflation rates for CPI US from the International Monetary Fund, sourced from Bureau of Labor Statistics

Methodology

Summary

Defence inflation estimates were published for the first time in March 2010. They measure the average change in pay and prices of goods and services, making up the Defence budget, with quality and quantity held constant.

The estimate of Defence inflation is a chain-linked Laspeyres price index. For each pair of consecutive years pure price growth is estimated by holding the quality and quantity of goods, services and personnel constant, and either directly measuring their change in price or making reference to relevant price indices. The year-on-year price growths are multiplied together to produce the chain-linked Laspeyres index with the reference period being the financial year 2004/05.

Laspeyres index

is a measure of the change in the price of a basket of goods. The quantities of the items within the basket of goods are fixed to allow a measure of pure price change.

Process

Each component (contracts, labour costs and cash office expenditure) of Defence inflation is estimated using a bespoke method reflecting the different data sources. These estimates are averaged, using the expenditures for individual components (from the Department's accounting data) as weights, to produce an overall measure of Defence inflation. For a detailed overview of the methodology used to estimate Defence inflation, refer to [Defence Inflation Statistical Bulletin 10](#).

Contracts

Defence Economics identifies all the relevant MOD contracts with a payment in the base year and sorts them into four categories for analysis, based on the type of contract and the contract value. Each category has its own method of estimation tailored to its particular characteristics.

Fixed Price contracts are those where prices are set to rise in line with a price index. For high value fixed price contracts (those ranked in the top 75% of annual expenditure), information on the index or indices used in each contract is provided by the relevant project teams within MOD. Inflation rates are calculated based on the movement of these indices in the inflation year, and then weighted by the relative expenditure on each contract in the base year (2014/15). Low value fixed price contracts are also included in this category where information on which indices are used has already been collected. These are generally contracts that were classed as high value in a previous year.

High Value Firm Price contracts are those that are ranked in the top 75% of annual expenditure, but are not categorised as Fixed price or Miscellaneous. These are generally contracts where a firm price has been agreed with a contractor in advance, rather than being linked to an index. Where possible, information is obtained from project teams in MOD on the inflation assumption that has been built into the firm prices. This could be an inflation rate (e.g. 2%) or an index (e.g. RPIX), or it may not be possible to identify a specific inflation assumption. For most Defence contracts, MOD holds information on the industry sector with which the contract was placed (known as a Standard Industrial Classification, or SIC group), so we can also use this to estimate inflation if there is no known underlying assumption. For those contracts with an index or SIC group assigned to them, inflation is calculated by looking at both historic inflation rates before the start of the contract and forecast inflation rates. The idea is that both historic and forecast inflation rates are likely to be taken into account when agreeing a firm price.

Methodology (cont.)

Low Value contracts are by far the largest group in terms of the number (but not the value) of individual contracts. It is not practical to ask project teams for specific inflation information for every low value contract, so instead we estimate inflation using the relevant SIC group for each contract. For those contracts which do not have an assigned SIC group, other information from MOD accounting systems is used to impute a suitable inflation rate where possible.

High Value Miscellaneous contracts are those that are ranked within the top 75% of annual expenditure and are paid through a separate payments system (typically used for running service items such as the provision of utilities). They do not have a SIC group assigned to them, so other information from MOD's accounting system is used to estimate suitable inflation rates. If there is not enough information to estimate a rate, RPIX is used.

Inflation by Industry

The SIC group information that is recorded against Defence contracts can be used to analyse Defence inflation in different UK industries, and to look separately at inflation rates for equipment and non-equipment contracts. Broadly speaking, 31 of the 51 SIC groups relate to equipment acquisitions and the other 20 relate to non-equipment acquisitions. For further details see [Defence Inflation Statistical Bulletin 10](#) (Appendix 1). Contracts that do not have a SIC group attached (equating to around one sixth of contract expenditure) are excluded from the industry analysis.

Labour Costs

Labour costs are initially broken down into civilian and military costs and inflation is estimated for further subsets of both elements, including pay, pensions, Employer National Insurance Contributions (ERNIC), Allowances and Travel & Subsistence (T&S).

Military Labour Costs

To estimate inflation in pay, pensions, ERNIC and Operational Allowances, monthly individual level pay data is extracted from the Department's military personnel system. These extracts are taken for every month of the base year (14/15) and the inflation year (15/16) and summed together to produce annual totals for every individual. Some individuals will appear in the dataset in both years, while others will only appear in the base year (if they have since left the Department) or the inflation year (if they have recently joined). All personnel are then grouped into homogenous groups based on their rank, regular/reserve status and officer/rank status. Average totals of pay, pensions etc. are calculated for each homogenous group in the base year and inflation year. The percentage change between these averages is calculated for each homogenous group and weighted by the number of personnel in that group and average pay in the base year.

Estimates of inflation for the other elements of military labour costs (including activity and non-activity allowances) are based on a combination of policy, as set out in the Armed Forces Pay Review Body (AFPRB) Report, and changes in gross expenditure between the two years. T&S inflation is estimated by reference to relevant price indices or the product of relevant price indices and exchange rates as appropriate.

Civilian Labour Costs

The methodology for estimating inflation in pay, pensions, ERNIC, overtime and RFA pay is similar to that explained above for military personnel, though rather than taking monthly data, snapshots of individual level data at the start and end of the base year and inflation year are taken from the civilian pay data systems. Personnel are sorted into homogenous groups based on their grade/profession and the change in the average pay between the two years is calculated for all groups.

Methodology (cont.)

The estimate of inflation in bonuses is based on the change in the average bonus amount paid per staff member (including performance awards, special bonuses and minor awards) between the two years, while the inflation estimate for civilian allowances is based on the change in gross expenditure. Bonuses and allowances are then weighted together with overtime and pay to produce the overall Gross Pay inflation rate. Travel and Subsistence and Locally Engaged Civilian (LEC) pay inflation are estimated by reference to relevant price indices or the product of indices and exchange rates as appropriate.

Cash Offices

Inflation in cash office expenditure is estimated as a product of local inflation, as measured by the change in each country's Consumer Price Index, and the average change in exchange rates. Exchange rates are based on spot rates, or the MOD's General Accounting Rate for countries where no spot price is available.

Inflation estimates are gathered for expenditure in Euros, US Dollars and local currencies (all other currencies where there is cash office expenditure) and then weighted by their relative expenditures to produce an overall estimate. Note that estimated expenditure on personnel is removed from the expenditure through cash offices, as the inflationary impact of overseas expenditure on personnel is captured within the labour costs element of Defence inflation.

Contract Payments in Foreign Currencies

Exchange rate variation can have an inflationary impact on contracts in two ways: (i) the contract has a formal exchange rate variation clause that adjusts the price/cost, in pounds sterling, to reflect movements in exchange rates; or (ii) part or all of the contract is paid in foreign currency.

The overall inflation rate for contract payments in foreign currencies is estimated using weighted inflation rates for US Dollars, Euros and local currencies. The table below presents total contract expenditure in foreign currencies since 2004/05, and the annual weightings of US Dollars, Euros and local currencies.

Table 10: Contract Expenditure in Foreign Currency and Weights, 2004/05 to 2014/15

	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Expenditure (£ million)	£1,439	£1,609	£1,887	£2,036	£2,600	£1,527	£4,044	£3,615	£3,609	£3,587	£3,363
<i>Weights</i>											
US Dollars	578	560	617	664	591	497	513	500	500	468	452
Euros	370	397	335	310	387	473	446	464	463	486	519
Local Currencies	52	43	49	26	23	30	42	36	37	46	30

In 2015/16, an improvement was made to the methodology for adjusting the contract inflation rate. A new dataset is available, making it possible to identify how much of each contract is paid in foreign currencies and the specific currencies involved. Using the relevant expenditure and inflation rates for all foreign currencies used, unique weighted inflation rates were calculated for each contract type to estimate the inflationary pressure of paying some contracts in foreign currency.

Previously, it was not possible to identify foreign currency expenditure at contract level so a process was in place to estimate an overall adjustment which was assumed to be spread equally across all contracts. The table below provides the inflationary adjustments applied to our estimates of contract inflation between 2005/06 and 2014/15 used in previous publications. For comparison, a 2015/16 adjustment was also calculated using the old methodology.

--- Dotted lines on tables indicate a break in the time series caused by a methodology change, meaning that comparisons with historical estimates should be viewed with caution. For details see the Methodology section on page 26.

Methodology (cont.)

Table 11: Impact of Paying Contracts in Foreign Currencies, 2005/06 to 2015/16

	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Contract Adjustment	-0.4%	-0.2%	-0.1%	0.4%	0.8%	0.5%	-0.1%	-0.3%	0.2%	-0.7%	-0.1%

The table below highlights the impact of the new methodology for estimating the inflationary pressure of paying some contracts in foreign currency. The contract inflation rates have been estimated using both the new and old methodologies. Applying a specific measure to each contract type obviously impacts on the individual inflation rates but there is no impact on the overall contracts inflation estimate and therefore no impact on the overall Defence inflation measure of applying the new methodology.

Table 12: Impact of Methodology Changes on Contract Inflation Rates

Contract Type	2015/16	
	Old Method	New Method
Contract Inflation	1.3%	1.3%
<i>High Value Firm Price</i>	3.0%	3.2%
<i>Fixed Price</i>	0.7%	0.4%
<i>Low Value Commodities and Services</i>	-0.3%	0.0%
<i>High Value Miscellaneous</i>	0.8%	0.3%

Changes to the Defence inflation methodology

Some of the charts and tables in this report include a break in the time series due to a methodology change. These changes in methodology usually follow the availability of new data sources, and mean comparisons with historical estimates should be viewed with caution. A summary of the changes is given below. Further details are available in previous Defence inflation reports.

The following methodologies have been reviewed and improved:

- The methodology for estimating inflation in military labour costs (2010/11)
- The methodology for estimating the adjustment to contract inflation as a result of foreign exchange (2011/12)
- The methodology for estimating inflation in military education allowances and civilian RFA Pay (2012/13)
- The methodology for estimating inflation in High Value Firm Price Contracts (2013/14)
- The methodology for estimating the adjustment to contract inflation as a result of foreign exchange (2015/16)

--- Dotted lines on tables indicate a break in the time series caused by a methodology change, meaning that comparisons with historical estimates should be viewed with caution. See note above.

Glossary

Activity Related Allowances Allowances awarded to individuals being asked to perform activities different from their standard duties, such as operations or training.

Armed Forces' Pay Review Body is a non-departmental public body (and a Review Body) established to review and recommend the pay and terms and conditions of employment of the British armed forces.

Cash Offices Operate in British embassies and MOD bases around the world and are responsible for maintaining imprest accounts. Imprest accounts are used to make payments in local currency or Great British Pounds to personnel, which cannot be made by other means. These include payments to overseas units with non-sterling bank accounts, payments to operational units overseas and payments to HM Ships and RFAs afloat. Contractors are not normally be paid through imprest accounts.

Chain-Linked Price Index An index which relates the price of a basket of goods and services to the prices of a similar basket in a previous period, not a fixed base period. Chain-linking an index enables the basket of goods to be regularly updated without introducing a break in the series.

Commodities and Service Contracts Any **low value contract** which does not have an indexation arrangement (e.g. **fixed price**). Commodity and service contracts are therefore made up of low value **firm price** and low value **miscellaneous** contracts.

Defence Contracts All contracts have been grouped by **Defence Economics** into four categories: high value **firm price**; **fixed price**; high value **miscellaneous**; and low value **commodities and services**.

Defence Economics is part of MOD's Performance & Analysis Directorate. The Defence inflation estimates are produced by the Economic Statistics and Equipment Support (ESES) Division within Defence Economics. The work of the division covers performance measurement, analytics and Official Statistics relating to Defence economic, financial, international and commercial activities which impact on Defence policy, the wider economy and society. It also provides advice on scrutiny of value for money decisions specifically relating to the treatment of inflation in Defence Contracts, which directly supports financial and corporate planning within DE&S and Head Office.

Defence Inflation Defence inflation is the average rate of increase in pay, and prices of all goods and services, making up the Defence budget, after allowing for changes in quality and quantity.

Earnings Related National Insurance Contributions (ERNIC) National Insurance payments made by the Department to HM Revenue & Customs, on earnings paid to the employee. These payments (secondary contributions) are in addition to those National Insurance contributions made by the individual themselves.

Firm Price Contracts Defence Economics defined sub-group of **Defence contracts** which captures contracts with a non-variable inflation rate embedded in the contract price.

Fixed Price Contracts Defence Economics defined sub-group of **Defence contracts** which captures contracts which contain an indexation adjustment, typically a variation of price clause. The indexation component of a contract links the contract payments to changes in price indices, in order to reflect inflation in related industries.

Gross Domestic Product Deflator This is an implicit price deflator for the Gross Domestic Product and is derived by dividing the estimate of GDP at current prices by the estimate of GDP at constant prices. The GDP Deflator can be viewed, and is commonly used, as a measure of inflation in the economy for the country to which it refers.

Gross Pay This represents an individual's total pay before deductions (such as tax and pension contributions) have been removed. Gross pay also includes allowances, overtime and non-consolidated performance related pay awards.

High Value Contracts Defence Contracts having an annual payment which fall in the top 75% of all ranked contract expenditure.

Labour Costs The total expenditure on labour for both military and civilian personnel. Labour costs capture expenditure on: pay, allowances, employer national insurance contributions (**ERNIC**), employer pension contributions (**SCAPE**), and travel and subsistence.

Glossary

Laspeyres Price Index This is a measure of the change in the price of a basket of goods. The quantities of the items within the basket of goods are fixed to allow a measure of pure price change. Prices are aggregated in a Laspeyres index by using weights from the base period.

Locally Engaged Personnel A civilian employee recruited overseas exclusively for employment in support of the UK Armed Forces deployed in a particular overseas theatre (or in support of the Sovereign Base Areas Administration in Cyprus) and on terms and conditions of service applicable only to that overseas theatre or Administration, including the dependents of UK military personnel or UK-based civilian staff employed in that overseas theatre (who are sometimes separately identified as UK Dependents). LECs are not civil servants.

Low Value Contracts Defence Contracts having an annual payment which fall in the bottom 25% of ranked contract expenditure.

Ministry of Defence The Ministry of Defence (MOD) is the United Kingdom government department responsible for implementation of government Defence policy and is the headquarters of the British Armed Forces.

Miscellaneous Contracts These relate to a payment method employed by the MOD for running service items such as the provision of utilities. Such items are covered by "miscellaneous" transactions where no 'MOD HQ Contract' exists. These agreements for goods or services will have been set up locally between the MOD Branch and the Supplier and are legally binding.

Non-Activity Related Allowances are essentially benefits paid to individuals such as education allowances, and committal and retention allowances.

Office for National Statistics (ONS) A non-ministerial Department responsible for the production of a wide range of independent economic and social statistics. The ONS is the executive office of the UK Statistics Authority which reports directly to Parliament.

Officers Member of the Armed Forces holding the Queen's Commission. This includes ranks from Sub-Lt/2 and Lt/Pilot Officer up to Admiral of the Fleet/Field Marshal/Marshal of the Royal Air Force, but excludes Non-commissioned officers.

Other Ranks Members of the Royal Marines, Army and Royal Air Force who are not officers. The equivalent group in the Royal Navy is known as "Ratings".

Retail Prices Index excluding mortgage interest payments (RPIX) is a **chain-linked price index** which measures the price change in the goods and services consumed by a typical household (excluding the change in price of mortgage interest payments). RPIX is a well-known and commonly used indicator of inflation in the UK general economy.

Royal Fleet Auxiliary Service Constituted in 1905, this is a civilian manned fleet, owned by the Ministry of Defence. Its main task is to supply warships of the Royal Navy at sea with fuel, food, stores and ammunition which they need to remain operational while away from base. It also provides aviation support for the Royal Navy, together with amphibious support and secure sea transport for Army units and their equipment. Its employees are full-time civil servants, but come under the Naval Discipline Act when deployed to sea under naval command.

SIC Groups These are groups defined by Defence Economics, based upon the Standard Industrial Classification of economic activity, which is maintained by the Office for National Statistics. They are used to place Defence contracts into homogeneous categories based upon the principle economic activity undertaken by a contract.

Specialist pay This is paid for undertaking specific activities related to an individual's normal work such as flying, parachuting, or being in a submarine.

Superannuation Contribution Adjusted for Past Experience (SCAPE) The model, accepted by HM Treasury, to charge government departments for the provision of an unfunded pension scheme. Under SCAPE, both the employer and the employee make contributions to the scheme. SCAPE rates are determined by the Government's Actuary Department to reflect their expectations of future pension provision.

Variation of Price is a pricing arrangement that can be negotiated into longer term contracts to help manage inflation risk. Fixed prices are set at a particular point in time (e.g. when the contract is placed) and are linked to a price index. The price paid over the duration of the contract is directly related to movements of that index.

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Defence Statistics website

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Defence Inflation Background Quality Notice

<https://www.gov.uk/government/collections/Defence-inflation-estimates-index>

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Employer Pension Contributions 2015/16

Military:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/536655/56072_HC_365_PRINT.pdf

Civilian:

<http://www.civilservicepensionscheme.org.uk/employers/employer-contribution-rates/>

HM Revenue and Customs: Rates and thresholds for employers 2015 to 2016

<https://www.gov.uk/guidance/rates-and-thresholds-for-employers-2015-to-2016>

Office for National Statistics

<http://www.ons.gov.uk/ons/index.html>

UK Code of Practice for Official Statistics

<http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html>

UK National Statistics Publication Hub

<http://www.statistics.gov.uk/hub/index.html>

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Further Information

Symbols

- discontinuity in time series
- not available
- r revised

Rounding

All index numbers and growth rates are calculated from unrounded data, and are presented to 1 decimal place. Growth rates represent year-on-year changes. Percentage changes in inflation rates are also calculated from unrounded data.

Weights

All weights presented in this report are specific to the 2015/16 Defence inflation measure. Previous years' inflation rates will have been based on different weights, specific to the relevant year, which are not shown. The weights reflect the expenditure pattern within the base year, so for the 2015/16 inflation measure weights reflect expenditure in 2014/15. Due to rounding, the weights may not sum to 1000.

Revisions

Revisions will be made to the Defence inflation measure to improve the usability and relevance when necessary. Reasons for revising figures include:

- (i) Acquiring new information relating to already published results;
- (ii) Improvements to methodology and selection of data sources;
- (iii) Identification of significant errors.

Throughout the publication, where revisions occur, they will be indicated by table footnotes.

Quality

A Background Quality Report providing an assessment of the Defence inflation statistics has been published alongside these Defence inflation estimates.

Contact Us

Defence Economics welcomes feedback on our statistical products. If you have any comments or questions about this publication or about our statistics in general, you can contact us as follows:

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Further Information (cont.)

If you require information which is not available within this or other available publications, you may wish to submit a Request for Information under the Freedom of Information Act 2000 to the Ministry of Defence. For more information, see:

<https://www.gov.uk/make-a-freedom-of-information-request/the-freedom-of-information-act>

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Naval Service Manpower	023 925 47426	DefStrat-Stat-Navy-Hd@mod.uk
Army Manpower	012 648 86175	DefStrat-Stat-Army-Hd@mod.uk
RAF Manpower	014 944 96822	DefStrat-Stat-Air-Hd@mod.uk
Tri-Service Manpower	020 780 78896	DefStrat-Stat-Tri-Hd@mod.uk
Civilian Manpower	020 721 81359	DefStrat-Stat-Civ-Hd@mod.uk
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