



BANK OF ENGLAND

# Speech

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## The Outlook for Jobs and Pay

Speech given by

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I want to make four main points in this speech. First, in my view, the labour market currently seems likely to tighten more this year than the external consensus expects, with further declines in unemployment and under-employment. Second, recent data support the view that the equilibrium jobless rate is lower than it used to be. Even so, the elevated level of labour shortages across a wide range of industries suggests there is no longer significant labour market slack. Third, the tightening labour market and rising recruitment difficulties probably will lift pay growth this year a bit above the recent subdued trends. Fourth, the economic outlook may change significantly – either way – as and when there is greater clarity over the UK’s economic relations with the EU and any transition to that end-state.

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Unemployment has fallen steadily for over six years, with the jobless rate down from the peak of 8.5% in 2011 to just 4.3% late last year, the lowest since 1975. Under-employment, which initially fell more slowly than unemployment, also has fallen markedly in recent years (see figure 1)<sup>1</sup>.

The view of the external consensus<sup>2</sup> is that this decline in unemployment is now probably over, and that unemployment is likely to stabilise or rise slightly this year. But my hunch is that the labour market will probably tighten further this year, with the jobless rate dropping to -- and perhaps even below -- 4% during 2018, alongside further declines in under-employment.

This difference in outlook partly reflects my view that the economy and labour demand are likely to hold up a bit better than many expect, and partly reflects the prospect that workforce growth – and hence potential growth – may be weaker than generally expected.

To be sure, recent data show a slight drop in employment over the last three months. However, wider labour market trends do not look weak in my view. For example, surveys suggest that firms’ hiring intentions are slightly above average (see figure 2), while the level of job vacancies is around a record high. The employment data are quite volatile from quarter to quarter, and the recent dip may just be a correction from the unusually strong gains in prior months.

More broadly, business surveys suggest that the economy will probably continue to grow at 1½% -2% near term (see figure 3), similar to the last year or two<sup>3</sup>, and a little above the external consensus<sup>4</sup>. Within that outlook, consumer spending is likely to remain fairly sluggish, balanced by buoyant exports and a modest gain in investment.

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<sup>1</sup> Under employment also has fallen markedly on the ONS measure, which counts people that would like to work more hours and those who would like to work fewer hours.

<sup>2</sup> See Consensus Economics, January 2018 survey, and also “Forecasts for the UK economy”, HM Treasury, December 2017. The IMF and OECD have published similar forecasts.

<sup>3</sup> I suspect we may eventually find that recent ONS GDP growth data are, as often happens, revised up a bit.

<sup>4</sup> Consensus Economics report that the external consensus, as of January 2018, is for 1.4% GDP growth in 2018.

There are headwinds to growth. For example, households and businesses – both inside and outside the UK – expect that Brexit will damage the economy over coming years (see figures 4, 5 and 6). These expectations are probably already having some impact on activity, especially investment and housing. These expectations have also squeezed consumers' real incomes, through the inflation triggered by the Brexit-related depreciation of sterling. Even though inflation has probably peaked, the adjustment to that real income squeeze will probably still restrain spending in 2018.

Nevertheless, the economy also continues to be supported by several major positives.

First, global growth is buoyant, with broad-based expansion across the US, EU and Asia, and marked upturns in world trade and investment. All this, plus the extra boost from sterling's depreciation since 2015, is supporting exports, business confidence and asset prices in the UK.

Second, overall corporate and household balance sheets in the UK have improved significantly in recent years, with lower debt levels (relative to income) and higher holdings of liquid assets. Banks are better capitalised and hence more resilient. Money and credit are growing steadily, more or less in line with nominal GDP.

Third, background drivers are in place for a cyclical upturn in business investment, with the high return on capital, low cost of capital, and high capacity use. Even with Brexit uncertainties, business surveys suggest that investment intentions are around average.

Fourth, fiscal headwinds are likely to be more gradual than previously envisaged, following the late-2017 Autumn Budget.

Fifth, monetary conditions remain supportive, with low interest rates and reasonable credit availability. There is little sign that the recent 25bp hike has triggered an outsized reaction from households, businesses and financial markets. Consumer confidence and business activity are little changed, the yield curve remains relatively flat and, with the decline in lending spreads over recent years, fixed mortgage rates remain lower than 2-3 years ago (see figure 7). As a result, many people that currently have a fixed rate mortgage would probably not face a rise in borrowing costs if they now had to replace that mortgage with a new loan<sup>5</sup>.

Balancing out the positives and negatives, the nearterm outlook for the economy is not great, but nor is it terrible. And even modest growth may well exceed the economy's diminished rate of potential growth. To put it differently, economic growth of around 1½-2% YoY may (as over the last year) be enough to tighten the labour market significantly further.

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<sup>5</sup> See pages 18-21 of Inflation Report of November 2017.

Most estimates suggest that UK potential growth has slowed from around 2½% per year in the pre-crisis period to about 1½% per year recently<sup>6</sup>. If anything, I suspect that it may now be even lower, due to slower workforce growth.

The decline in UK potential growth to around 1½% in recent years has reflected lower productivity growth, which averaged just 0.7% per year over 2010-17 versus 1.9% YoY on average in 1997-07<sup>7</sup>. Productivity growth also slowed in the US and euro area. But potential growth in those countries also has been reduced by lower workforce growth, partly reflecting demographics, as well as (in some cases) other factors including hysteresis from persistent high unemployment. By contrast, UK workforce growth has (until recently) remained around ¾% per year, similar to the pre-crisis average and roughly twice the average pace in the euro area (see figure 8).

Since 2012, the UK's relatively high pace of workforce growth has largely been driven by inflows of foreign workers, especially from other EU countries<sup>8</sup>: the aggregate contribution to workforce growth from people born in the UK has been close to zero (see figure 9). The boost to labour supply from inward migration in the UK has been well above the EU average.

However, the growth of the foreign-born workforce in the UK has slowed sharply in recent quarters<sup>9</sup>, especially people from other EU countries<sup>10</sup>. Over 2013-16, inflows of people born in other EU countries added 0.5pp per year on average to UK workforce growth: that boost has now fallen to roughly zero. This has played a major role in reducing overall UK workforce growth from 1.0% YoY in 2016 to just 0.4% YoY in late 2017, the latest data<sup>11</sup>.

The slowdown in foreign worker inflows seems to reflect reduced labour supply – with citizens of other EU countries less willing to work in the UK -- rather than reduced demand for labour in the UK. Reports from the Bank's regional agents and business surveys<sup>12</sup> highlight Brexit-related uncertainties, for example over future job opportunities, benefit eligibility and health cover in the UK. Moreover, sterling's Brexit-related depreciation has reduced incentives to work in the UK – especially for people intending to send money home -- because the UK's relative wage levels have fallen in foreign currency terms<sup>13</sup>.

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<sup>6</sup> This is the view of the OBR, OECD, IMF and external consensus.

<sup>7</sup> See Tenreyro (2018).

<sup>8</sup> For example, from Q4 2012 to Q4 2016, the UK workforce rose by 1.0 million people, or 3.0% (an average of 0.75% per year). Over that period, the number of UK-born people in the workforce fell slightly (down 69K, 0.2%). The number of foreign-born people in the UK workforce rose by 1.1 million, 22%, mostly people born in other EU countries (up 0.7 million, 40%). There was little change in the participation rate of foreign-born people.

<sup>9</sup> The foreign-born workforce rose by just 84K YoY in Q3 2017 (adding 0.2% to the UK workforce), less than a third of the average growth in the prior four years. The number of EU-born people in the UK workforce rose by only 8K YoY in Q3 2017 versus 170k per year over prior four years.

<sup>10</sup> The ONS migration data, which extend to Q2 2017, suggest that the reduced net inflow chiefly reflects lower inflows of EU citizens, but there has also been a rise in outflows of EU citizens from the UK.

<sup>11</sup> By region, workforce growth remains positive in London and SE England. Across the other UK regions combined, the workforce is down 0.2% YoY.

<sup>12</sup> See for example "The Brexit effect on EU nationals", KPMG, 25 August 2017.

<sup>13</sup> World Bank data put remittances from the UK to other EU countries at \$8.8bn in 2016 (35% of total remittances sent from the UK), up from \$6.3bn in 2010. In 2016, there were on average 2.3 million EU nationals working in the UK. So, if one assumes that the remittance outflow is entirely driven by EU nationals, then this works out as an average of \$3800 per person per year.

There may also be an impact from stronger growth and reduced slack elsewhere, especially in the countries that until recently saw outflows of workers. For the EU as a whole, unemployment is at a 9-year low, and the share of firms that report output is constrained by labour shortages is at a record high – with very high readings in the A8 countries (see figure 10). Wage growth in the A8 countries has picked up markedly<sup>14</sup>. Even Germany, which obviously is not leaving the EU, has seen a sharp slowdown in the number of citizens from other EU countries in its workforce<sup>15</sup>.

Prospects for migration flows are uncertain. But my own view is that, given the tightening in labour markets elsewhere and ongoing Brexit uncertainties, net inflows from EU countries to the UK workforce in coming years will remain much lower than in recent years. I would not be surprised if they turn negative – ie more people leave than arrive -- at some stage.

It seems unlikely that the reduction in labour supply growth from lower net inflows of foreign workers will be fully offset by a rise in participation rates. The UK participation rate is already around a record high, and the number of people that are not counted in the workforce but say they would like a job is around a record low<sup>16</sup>.

With reduced workforce growth, productivity growth would need to pick up substantially to keep potential economic growth at around 1½% YoY. There is little sign of this at present. Productivity did rise markedly in Q3 in QoQ terms -- the flipside of the drop in employment noted earlier. But this followed a couple of very weak quarters for productivity. The YoY pace, at 0.8%, is similar to the subdued trends of recent years.

I do not believe that the UK is inevitably locked into persistent low productivity growth. Technological innovation remains high and there is ample scope for UK productivity to catch up to the higher levels elsewhere, for example, the US and Germany.

However, the route to a sustained pickup in productivity growth probably relies on higher levels of investment and training. At present, there is little sign that these are changing dramatically<sup>17</sup>. Moreover, the drop in inward migration seems to be adversely affecting workforce quality, which may cap future productivity gains. Over 2006-2016, the number of graduates in the UK workforce rose by an average of 4.1% YoY, somewhat above the EU average (3.3% YoY). Roughly one third of that rise in the UK reflected foreign citizens<sup>18</sup>. Now, with reduced foreign worker inflows, the number of graduates in the UK workforce is up just 0.6% YoY (Q3

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<sup>14</sup> Wages and salaries per hour in the A8 countries rose by an average of 7.4% YoY in Q1-Q3 2017 (latest data, GDP weighted across countries) compared to roughly 4% YoY in 2015 and 2016.

<sup>15</sup> The number of non-German EU citizens in Germany's workforce rose 0.7% YoY in 2017Q3, versus average gains of 10.0% YoY in 2013-16.

<sup>16</sup> Moreover, participation rates among people aged 65+ years, which had been rising, have flattened off recently. The UK participation rate among people aged 65-74 years is already the equal second highest among the EU15 countries, exceeded only by Sweden.

<sup>17</sup> The CBI reports that the balance of firms intending to invest more in training is similar to the average of the last five years for both the manufacturing and service sectors.

<sup>18</sup> 49% of foreign citizens in the UK workforce (aged 15-64 years) have tertiary education, versus 37% of UK citizens. In 2016, half of the rise in the stock of graduates in the UK workforce reflected foreign citizens.

2017, latest data), the lowest growth since quarterly data began in 2000<sup>19</sup> and among the lowest of any EU country (see figure 11).

All this points to the possibility that UK potential growth may now be below 1½%. For example, the OECD estimates euro area potential growth at around 1%. The UK and euro area have had similarly low rates of productivity growth in recent years. The difference in potential growth reflects the greater boost to the UK workforce from inward migration. Take this away and, unless UK productivity growth rises markedly, UK potential growth would be similar to the meagre euro area pace. I stress that monetary policy can do very little to lift trends in potential growth or productivity growth.

Of course, the drop in foreign worker inflows reduces demand in the economy as well as supply. For example, it is likely to already be hitting consumer spending, with an impact roughly proportionate to the drop in workforce growth<sup>20</sup>. However, the adverse effects on overall GDP may not necessarily be as immediate. The impact on investment may be bigger or smaller, depending on the extent to which foreign workers are a complement or a substitute for the capital stock. And lower workforce growth probably only affects exports through a gradual process of capacity constraints and upward pressures on pay – which will eventually reduce demand for UK exports to match the reduced potential supply – rather than the immediate effects that would be likely for consumer spending. Either way, the signs so far are that the economy as a whole is growing steadily despite this headwind.

Overall, I suspect that – in line with business surveys – the economy will probably continue to grow steadily at around its recent pace, and as a result the labour market will tighten further.

Let me turn to prospects for the growth of labour costs, especially pay.

The economy currently seems to have limited slack. Business surveys, including the BoE Agents, suggest that staff recruitment difficulties have worsened over the last year – especially for skilled and professional staff -- and are similar to pre-crisis peaks (see figure 12). Unemployment is low by historic norms, with short-term unemployment at a record low. The net balance of people wanting to work more hours has fallen close to zero. Consistent with this, inflation among CPI components that are driven chiefly by domestic factors is close to a target-consistent pace, assuming a normal trend in import prices. From this starting point, my hunch is that further tightening in the labour market is likely to cause underlying pay growth to pick up from about 2¼% recently to about 3% this year and probably a little higher next year.

Now, I am fully aware that pay growth has repeatedly undershot the forecasts of the MPC and external consensus in recent years. This has led some people to argue that the wage Phillips curve – the theory that

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<sup>19</sup> Annual data for the UK go back to 1993 and the latest figure is below any annual average for that period.

<sup>20</sup> The effect on consumer spending may be less than the effect on the workforce if foreign workers send significant remittances home. The recycling of such remittances into increased demand for UK exports is likely to be limited given the UK's modest share in world trade.

lower unemployment will lift pay growth – is effectively dead or flat, with the result that falling unemployment produces little or no upward effect on pay growth.

However, I still think the wage Phillips curve is a useful framework, especially if broadened to include trends in productivity growth and inflation expectations. Various factors have probably shifted the UK Phillips curve down in recent years – implying lower pay growth for a given jobless rate. These factors include wider education attainment, changes to the tax and benefit system, the spread of less secure forms of employment, more widespread under-employment and so forth (see figure 13)<sup>21</sup>.

Recognising this, the MPC a year ago cut its estimate of the equilibrium jobless rate ( $U^*$ ) from 5% to 4½%. This would imply that the economy can probably operate with a lower unemployment rate than in the past. As I have said before<sup>22</sup>, I consider it possible that the equilibrium jobless rate is slightly below 4½%. But I doubt it is very much lower. Pay growth in recent years has followed a path broadly consistent with a 4½%  $U^*$  estimate, given trends in inflation expectations and productivity growth. The same holds for the latest data, for Q3 2017. The wage Phillips curve is also intact at a regional level, although there is tentative evidence that it has flattened a bit in the last few years compared to estimates up to 2011 or 2014, such that wage growth reacts a bit less than previously to any given drop in unemployment (see figure 14)<sup>23</sup>. It appears to me that the Phillips curve has shifted, but not vanished.

Moreover, pay growth during 2017 probably has not fully reflected the recent labour market tightening.

First, YoY pay growth typically reacts to changes in the jobless rate with a lag of several quarters. As such, pay trends in 2017 probably tell us more about labour market slack in 2016 than in 2017. And these lags may currently be a little longer than usual. For several years, the recession left a hangover of caution and job insecurity, which limited the extent to which people moved job for slightly better pay. In turn, the relatively low level of job-to-job moves in recent years has probably reduced the extent to which firms feel pressure to raise pay to retain staff. This has led to an unusually wide gap between pay growth for job movers (8.0% YoY on average in 2016-2017, similar to the pre-crisis norm) and for those who stay in the same job (2.6%, well below the pre-crisis norm), see figure 15. Anecdotally, firms report they must pay up for new hires but so far have to an extent been able to limit passing on the higher pay levels to existing staff. In recent quarters, the number of job-to-job moves has returned to something like the pre-crisis norm (see figure 16)<sup>24</sup>. Over time, I would expect the tight labour market and wide gap in pay growth between job movers and job-stayers to encourage more people to move job and pressure firms to pay more to keep staff.

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<sup>21</sup> See Haldane (2017) and Saunders (2017).

<sup>22</sup> See evidence to the House of Commons Treasury Select Committee, November 2017.

<sup>23</sup> The Phillips curve estimates ending in 2017 are not flatter than those for the pre-crisis period, although it is difficult to estimate a Phillips Curve in the pre-crisis period, most probably because the economy and labour market were close to trend. See Leduc and Wilson (2017) for the US experience.

<sup>24</sup> The rise in the numbers of self-employed, who report very low levels of job-to-job flows, has probably reduced the normal level of overall job-to-job flows. Adjusting for this, the number of job-to-job flows is very close to the 2001-07 average.

Second, composition effects have been unusually negative in recent AWE data, cutting roughly 0.5p off YoY pay growth in Q3 2017 (see figure 17). The AWE data measure the average level of pay per person per week across a wide sample of firms and hence are affected by changes in the mix of employment between people or sectors with differing pay levels<sup>25</sup>. Composition effects have become increasingly counter-cyclical in recent years – in other words, more negative when unemployment is falling -- especially those relating to the age, qualifications and tenure of staff<sup>26</sup>. In my view, if one is looking at changes in pay growth as a guide to changes in cost and inflation pressures, it is useful to strip out such composition effects<sup>27</sup>, because they probably have a similar effect on productivity and hence leave unit labour cost growth unaffected. Excluding composition effects, pay growth is already close to 3% YoY. Composition effects may well continue to reduce average earnings growth in 2018 if, as I suspect, unemployment continues to edge down. Nevertheless, unless composition effects increase further from the recent high pace, they will not be enough to prevent AWE growth from moving higher if underlying pay growth picks up further.

Third, pay growth in recent years has understated the rise in total labour costs, with large rises in non-wage costs, including national insurance taxes<sup>28</sup>, contributions to DB pension schemes, auto enrolment, the Apprentice Levy and so forth (see figure 18)<sup>29</sup>. Even with subdued pay growth, overall unit labour cost growth in the last couple of years averaged about 2½% YoY, similar to the pre-crisis average<sup>30</sup>. This pace is probably roughly consistent with the inflation target over time, assuming a normal trend in import prices. Some non-wage costs, eg lump sum contributions to a closed DB pension scheme, are probably best viewed as fixed costs rather than marginal costs and are unlikely to have much influence on wages or prices<sup>31</sup>. But some, eg auto enrolment, are akin to deferred compensation and probably do affect firms' marginal costs and prices. To the extent that firms and workers view such non-wage costs as part of overall compensation, increases in non-wage costs may also have had some dampening effect on pay growth<sup>32</sup>. Looking ahead, auto enrolment costs will continue to rise for many firms in 2018-19. If the growth of non-wage costs were to remain high, then it would be ever more important to keep an eye on total labour cost growth rather than just average earnings.

Moreover, while high inward migration has not significantly reduced overall pay levels in recent years<sup>33</sup>, the ample availability of foreign workers may, until very recently, have limited somewhat the extent to which pay growth responds to low UK unemployment<sup>34</sup>. When both firms and workers know it is still relatively easy to

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<sup>25</sup> See Broadbent (2015) and page 32 of November 2017 Inflation Report.

<sup>26</sup> Reflecting such factors, the average level of pay among people that are in work at a given date and also in work a year earlier is typically about 40% above that for people who were not in work a year earlier.

<sup>27</sup> For example, the Employment Cost Index in the US is adjusted for composition effects.

<sup>28</sup> Both the employer and employee rates rose by 1pp in 2011.

<sup>29</sup> See Bell and Whitaker (2017).

<sup>30</sup> The ULC data do not include the Apprentice Levy.

<sup>31</sup> See Inflation Report of November 2016, pages 14-15.

<sup>32</sup> The CIPD reports that 12% of firms cite increases in non-wage labour costs as a factor likely to restrain pay growth in 2018, the equal third highest factor. In addition, 10% of firms cite costs of auto enrolment, and 8% of firms cite costs of the Apprentice Levy, as key factors likely to restrain pay growth. See CIPD/Adecco Labour Market Outlook November 2017.

<sup>33</sup> See Nickel and Salaheen (2015).

<sup>34</sup> There is a similar argument in the UK section of OECD (2006): "international as well as UK evidence suggests that immigration can serve to make the labour market as a whole more fluid and wages less sensitive to demand fluctuations." See also Blanchflower, Salaheen and Shadforth (2007).



hire people from outside the UK for jobs in the UK, the appropriate measure of slack widens to encompass all potential applicants for jobs in the UK, including people currently outside the UK. This wide concept of slack is difficult to measure but, until recently, has probably been relatively high despite low unemployment in the UK. As a result, the Phillips curve measured against UK unemployment may have appeared relatively flat (and/or perhaps a lower  $U^*$ ). With availability of foreign workers now apparently declining – partly reflecting reduced external slack – skill shortages are becoming more acute and low UK unemployment may have a greater influence on UK pay growth, in effect reviving and re-steepening the wage Phillips curve<sup>35</sup>.

To be sure, pay growth in 2018 is likely to stay well below the pre-crisis norm of 4% or so. But, I suspect it is more likely to overshoot than undershoot the external consensus (which is for AWE growth of 2.6% in 2018 and 2.8% in 2019)<sup>36</sup>. The Nov-2017 IR projected pay growth to pick up to around 3% in 2018 as a whole. Even with some pick up in productivity, such a trend would probably signal the likelihood that CPI inflation will stay above target over time once the direct boost to inflation from sterling's depreciation fades. Indeed, pay growth in 2018 could rise above 3% YoY, especially if composition effects unwind and underlying pay growth picks up further.

Let me turn to Brexit. The MPC's economic forecasts are based upon a range of possible longrun outcomes for the UK's trading relations with the EU and elsewhere, and assume the economy adjusts smoothly over a number of years. To be clear, our forecasts do not explicitly assume a particular length of transition period, still less what the details of that transition might be. But regardless of that, what matters for the economy right now and in the future are the collective expectations of households, business and financial markets rather than the MPC's assumptions. So far these private sector expectations seem broadly consistent with our assumption of a reasonably smooth adjustment and modest longrun adverse effects on the economy. And, as noted earlier, anticipation of these effects seems to be already dampening economic activity to an extent.

It is possible that the expectations of households, business and markets will move around in coming months in response to twists and turns in the Brexit negotiations. As we have said, the MPC will not be giving a running commentary on the state of negotiations. But in our economic forecasts we will, of course, be sensitive to observed changes in business and consumer confidence, as well as financial markets, in this period. As and when there is greater clarity on the UK's eventual trading relations with the EU, and any transition period, then those decisions -- and any resultant changes in private sector expectations and asset prices -- could well affect the economy's prospects, including growth, potential growth and inflation, in a material way. These effects could go either way.

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<sup>35</sup> See Carney (2017).

<sup>36</sup> Reported in the January 2018 Consensus Economics survey.

## Conclusion

Let me finish with some comments on monetary policy.

In the exceptional circumstances since the EU referendum, the MPC is – consistent with our remit -- aiming for an appropriate tradeoff between the speed with which inflation returns to target and the extent of spare capacity. If the prospective terms of that tradeoff change, then it is natural for monetary policy to respond. I stress that monetary policy is driven far more by inflation prospects over the next 2-3 years than the actual inflation rate over the latest 12 months.

If the economy turns out broadly in line with the outlook I have described – labour market tightness and signs of higher pay growth -- I consider it likely that interest rates will need to rise further over time. As with other MPC members, I expect that any further tightening will be limited and gradual. But I am not going to pre-announce how I might vote at any particular future MPC meeting. There is plenty of data to see and analysis to do before we get to that. In particular, the February Inflation Report will include the results of our annual supply stock-take, which will include consideration of prospects for productivity, equilibrium unemployment, migration and labour supply.

There is considerable uncertainty over the exact level of interest rates that is neutral<sup>37</sup>, but I am fairly confident that we are below that level at present, especially if one allows for the stimulus from the stock of asset purchases. It follows that a modest further rise in rates would still imply a shift towards neutral, rather than an outright move to a restrictive policy stance. We would be gradually lifting our foot off the accelerator, with no need to put the brakes on.

But the path of monetary policy is not preset. In particular, consistent with our remit, the MPC has said that any monetary policy implications from Brexit developments would not be automatic, and would depend on changes in supply, demand and the exchange rate. It is certainly not correct to assume that “good” or “bad” Brexit news automatically implies that interest rates must go in a particular direction. The MPC has tools to respond either way as needed to changes in the economic outlook.

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<sup>37</sup> See Vlieghe (2017).

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Figure 1. UK – Unemployment Rate and Under-Employment Rate, 1992-2017

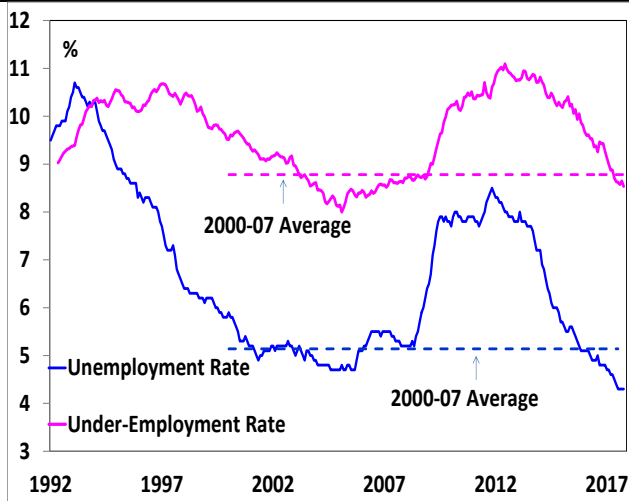
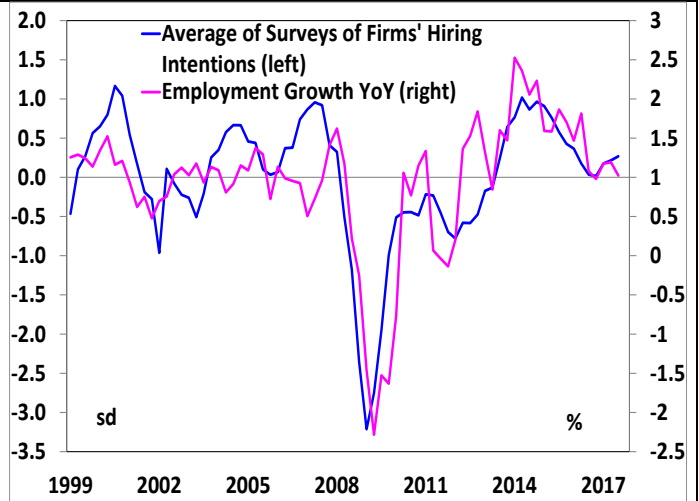


Figure 2. Surveys of Firms' Hiring Intentions (Standard Deviations from Average) and YoY Job Growth, 1999-2017



Note: In the left chart, under-employment is measured by involuntary part-time workers and people that would like to work but are not counted in the workforce, as a share of the expanded workforce. The right chart shows a weighted average of hiring intentions from various surveys.

Sources: Manpower, British Chambers of Commerce, REC Survey of Jobs, CBI, ONS and BoE

Figure 3. UK – Business Surveys and GDP Growth, 2005-17

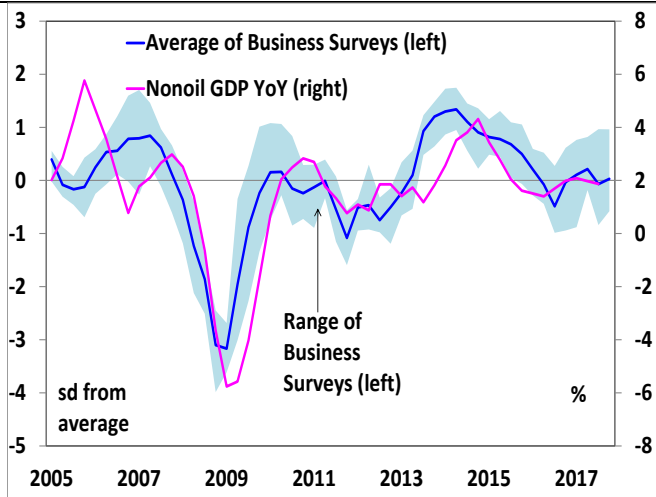
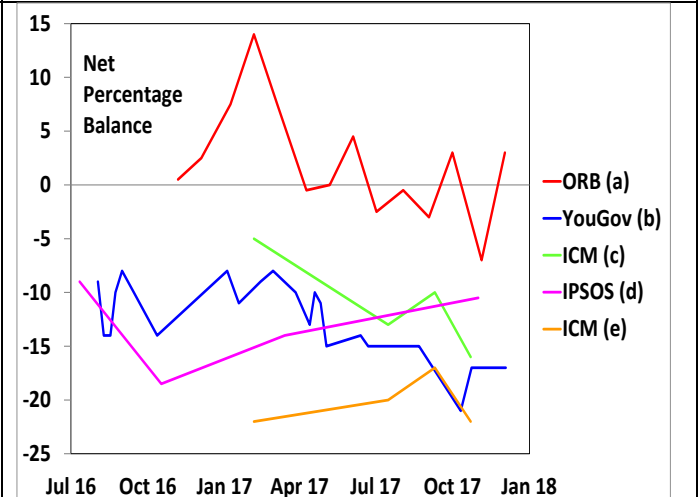


Figure 4. Net Balance of Households Expecting Brexit to Have a Positive Economic Effect, 2016-17



Note: In the right chart, the questions are as follows. a): Do you agree or disagree that Britain will be economically better off post-Brexit? (b): Do you think Britain will be economically better or worse off after we leave the EU? (c): Do you think Brexit will have a positive or negative impact on the British economy? (d): Now that Britain has voted to leave the EU, to what extent do you think it will be better or worse for your own standard of living? (e): Do you think Brexit will have a positive or negative impact on your own personal finances?

Sources: European Commission, British Chambers of Commerce, Markit, Lloyds Business Bulletin, ICAEW and BoE

Figure 5. Pct of Firms Citing Adverse Effect of Brexit on Investment, 2017

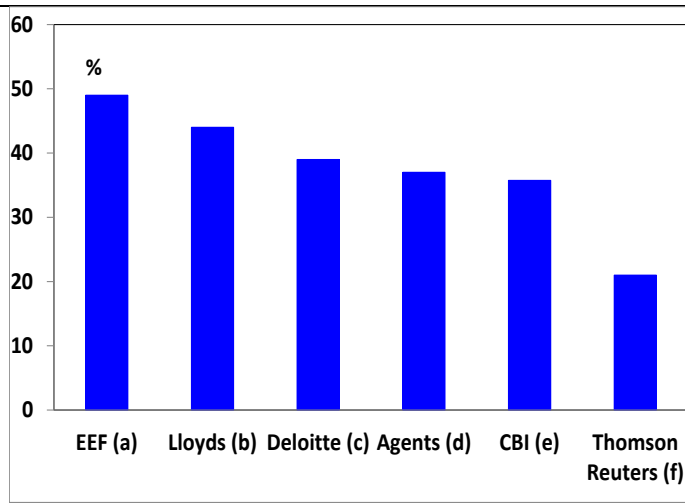
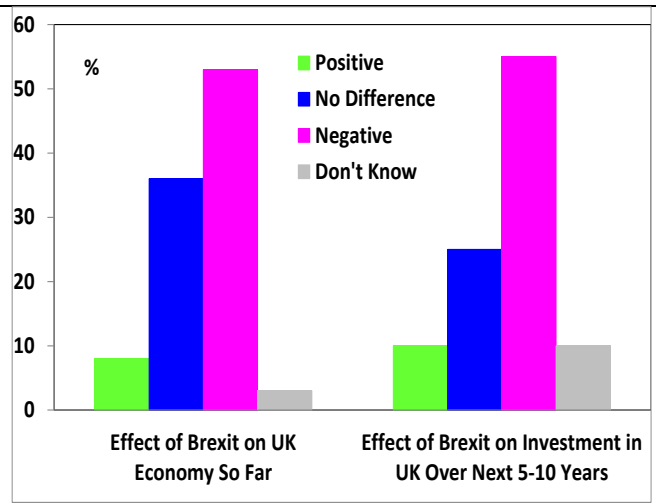


Figure 6. Attitudes of Foreign Firms to Brexit and UK Economy, October 2017



Note: In the left chart, the questions are (a) Percentage of respondents who were holding off or limiting in investment because of Brexit. (b) Response to the 2016 EU referendum: delaying investment decision-making. (c) Percentage of CFOs who expect capital expenditure by their business to decrease over the next three years as a consequence of Brexit. (d) Percentage of businesses saying that Brexit has negatively affected their investment decisions. (e) Percentage of firms reporting that economic uncertainty, expected future international trade arrangements or other Brexit factors were affecting investment negatively. (f) Impact of Brexit: holding off from expanding operations in the UK. Sources: EEF, Lloyds Business Bulletin, CBI, Deloitte CFO Survey, Thomson Reuters, Ipsos/MORI and BoE

Figure 7. Changes in Selected Household Interest Rates in Periods to December 2017

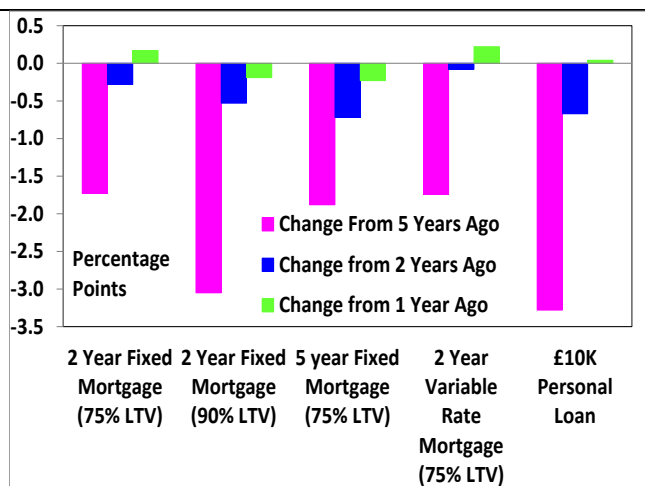
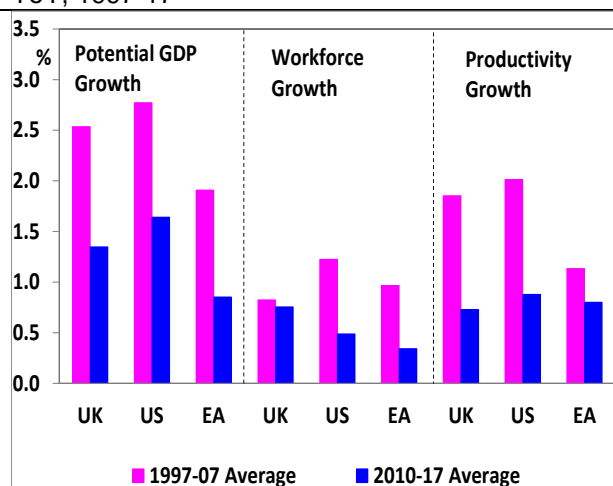


Figure 8. UK, US and Euro Area – Potential GDP Growth, Workforce Growth and Productivity Growth, YoY, 1997-17



Note: In the right chart, numbers are from OECD Economic Outlook, November 2017 and include the OECD's estimate for 2017. Sources: OECD and BoE

Figure 9. UK – Contribution to YoY Workforce Growth By Place of Birth, 1997-2017

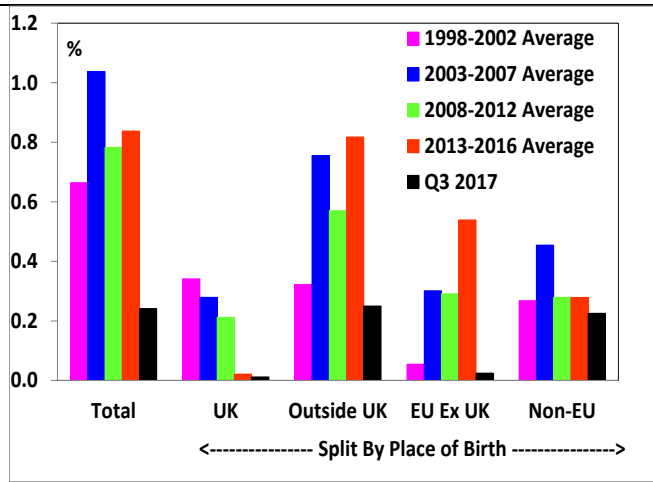
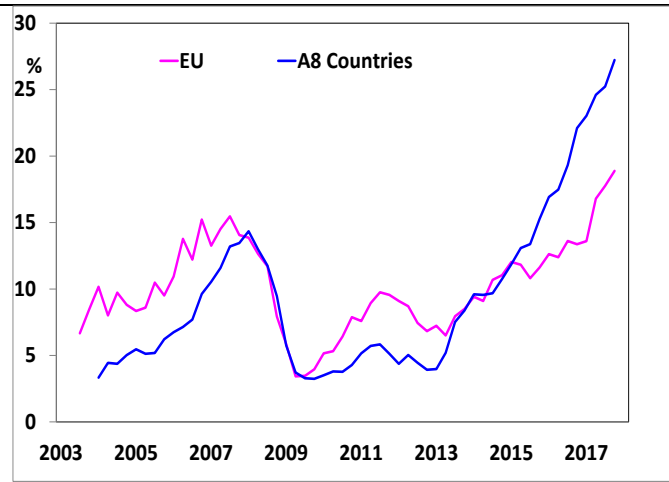


Figure 10. EU and A8 Countries -- Pct of Firms Reporting Output Constrained By Labour Shortages, 2003-17



Note: In the right chart, we use a weighted average for manufacturing and services. The A8 average is also weighted appropriately.

Sources: ONS, European Commission and BoE

Figure 11. UK and EU – Number of Graduates in Workforce (Aged 15-74 Years) YoY, 1997-17

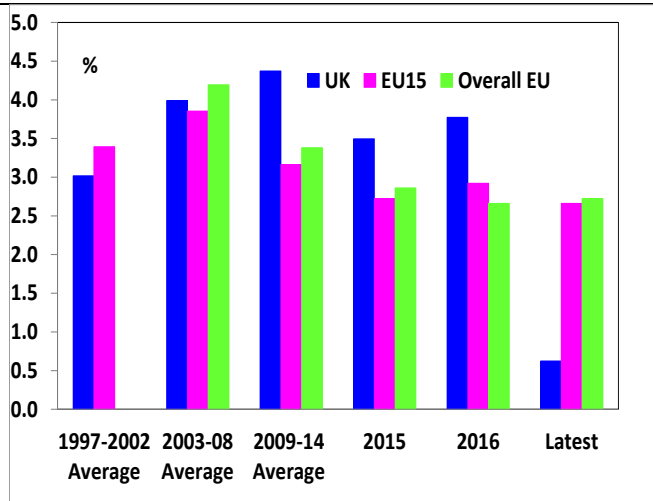
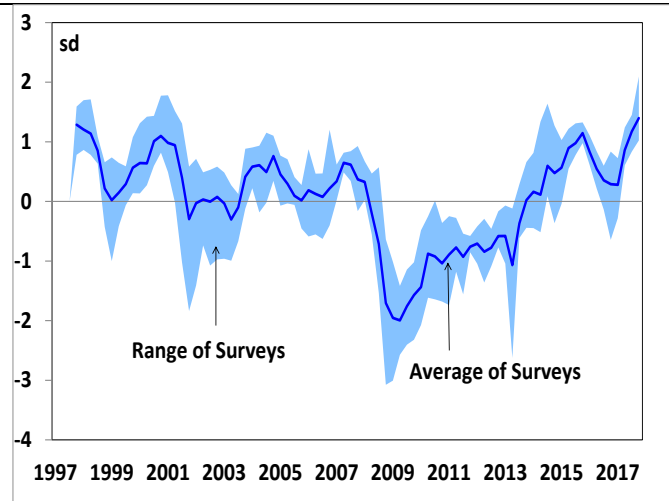


Figure 12. UK – Surveys of Labour Market Tightness, Standard Deviations from Average Since 2000), 1997-2017



Note: In the left chart, latest data are Q3 2017 for UK, Q2 2017 for EU and EU 15. In the right chart, we use a weighted average for manufacturing and services.

Sources: Eurostat, CBI, British Chambers of Commerce, REC and BoE

Figure 13. UK – Jobless Rate and Average Weekly Earnings Growth, 1980-17

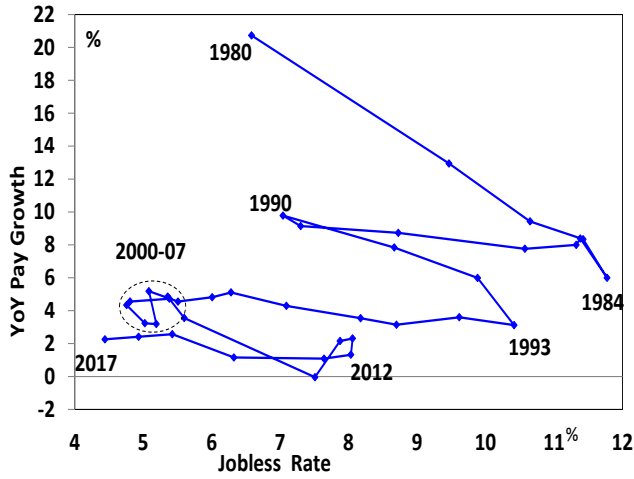
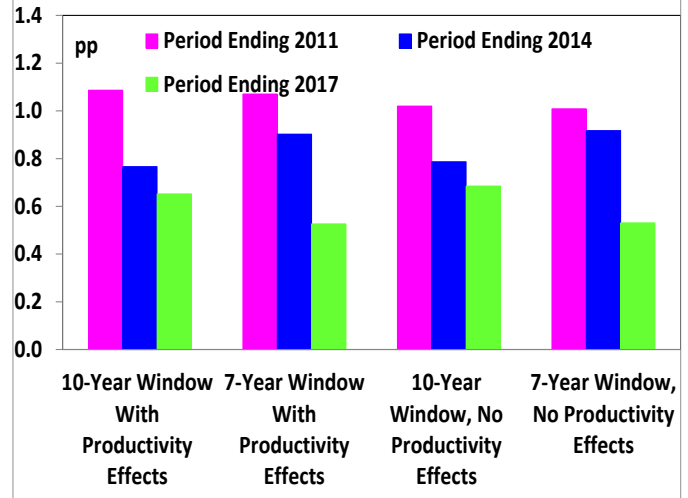


Figure 14. UK – Average of Regional Coefficients for Response of Pay Growth to a 1pp Drop in Jobless Rate, 2001-17

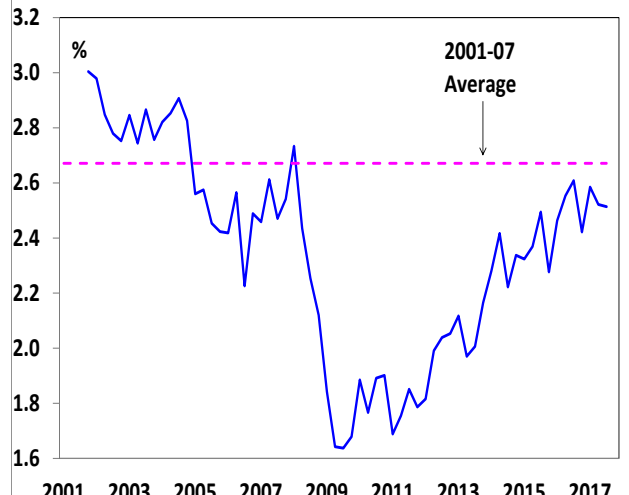


Note: In the left chart, the 2017 average assumes the data are unchanged in the last two months of the year, for which data are not yet (at the time of writing) published. In the right chart, we show the average coefficient for regional Phillips curves estimated across the 12 standard UK regions. The trend is similar using lagged CPI inflation rather than productivity. Sources: ONS and BoE

Figure 15. UK – Median Annual Pay Growth for Job-Switchers and People Who Stay in Same Job, 1993-2017



Figure 16. UK – Job-to-Job Flows as Pct of People (Aged 16-69 Years) in Work, 2001-17



Note: The left chart shows the median change in pay over a year for people who stayed in the same job at the same firm for that period, and those who moved job over that period. Sources: ONS and BoE



Figure 17. UK – Average Earnings Growth YoY, and Adjusted for Composition Effects, 2001-17

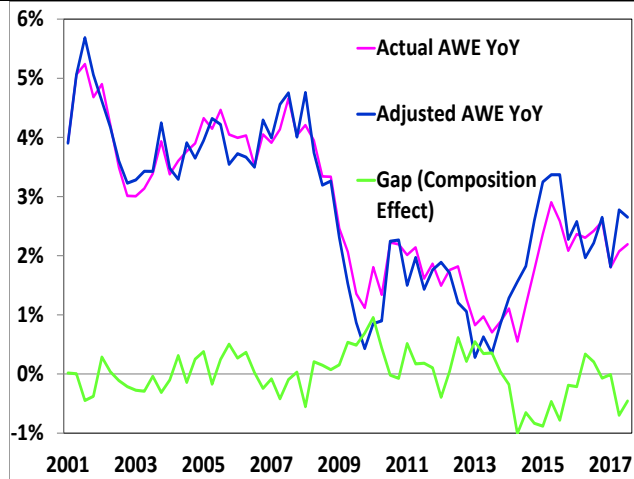
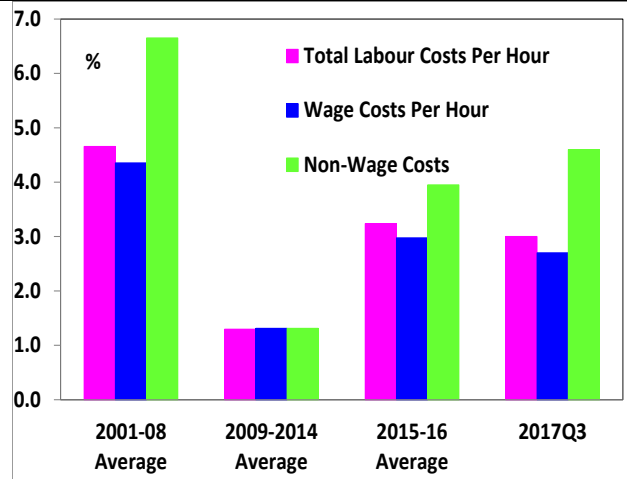


Figure 18. UK – Annual Growth of Private Sector Labour Costs, Wages and Non-Wage Costs Per Hour, 2001-17



Note: In the left chart, AWE growth is measured excluding bonuses. The composition effects are normalised to average zero over time.

Sources: ONS and BoE