Supply Stocktake (6/10)

Note title: **Labour Force Participation Stocktake**

STRUCTURAL ECONOMIC ANALYSIS DIVISION

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LABOUR FORCE PARTICIPATION STOCKTAKE

(SEAD)

Main message: The recent downturn in participation beginning in mid-2014 seems to be more consistent with a lower trend participation rate than assumed in the February *IR*, which reached 63.9% by the end of the forecast. Cyclical indicators of labour market slack, such as the number of inactive individuals who want a job and the participation rates of those age groups which seemed to have initially responded the most to the downturn, appear to point to less remaining slack than previously thought. Our current view is therefore that it is likely that much of the cyclical recovery in participation is now over, with participation likely to remain broadly flat at a rate of about 63.5%, closer to the current outturn.

Key points

- Overall, the 2008 recession was associated with pro-cyclical participation dynamics, with activity first declining and then making a more or less full recovery by the beginning of 2014. Our previous outlook factored in a continued cyclical rebound. But this did not materialise, with actual participation instead falling quite consistently over the second half of 2014. Other indicators suggest that the risks of a major cyclical upturn are quite small.
- Labour demand has almost stabilised relative to pre-recession norms, meaning that the upward pressure on participation resulting from the recovery in job creation is also likely to dissipate soon in the absence of a large, renewed incentive to create jobs, such as a rebound in labour-augmenting technology. With measures of inactive people on the margin of entering the labour force getting back almost to pre-recession levels, it appears that the recovery phase of the latest cycle does not have much further to run.
- In addition to this, the participation rates of the 18-24 and 50-64 age groups—which appear to have experienced the largest cyclical effects in response to the recession—are now roughly back in line with their pre-crisis trends.
- The risks to the February 2015 participation outlook therefore appear to be to the downside. A more neutral central outlook now seems one of a flat profile at 63.5% (0.4pp lower than Feb *IR* by the end of the forecast), reflecting the continuing offset between population ageing and increased longevity (leading to rising participation rates among older workers). This implies a participation gap of 0.2pp for 2015q1 compared with 0.5pp in the February *IR*.

1. *Broad picture*

UK labour force participation had been on an upward path since the mid-90s (Figure 1), mainly driven by rising female participation and higher activity rates among those aged fifty and over. This secular trend was interrupted by the 2008 recession, with the 16+ participation rate falling by about ¾ of a percentage point during 2009. This fall is largely explained by a sharp dip in the activity rates of 18-24 year olds (with a commensurate increase in the number of students) and a slowdown in the upward trend of 50-64 activity rates (Figure 2), likely linked to early retirement.

Figure 1: 16+ participation rate

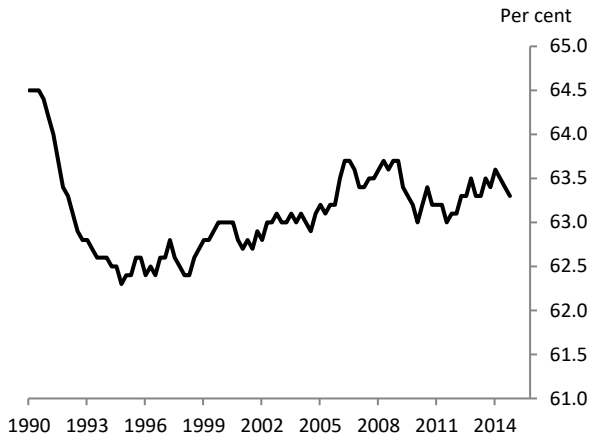


Figure 2: Participation rates for 18-24 year olds and 50-64 year olds

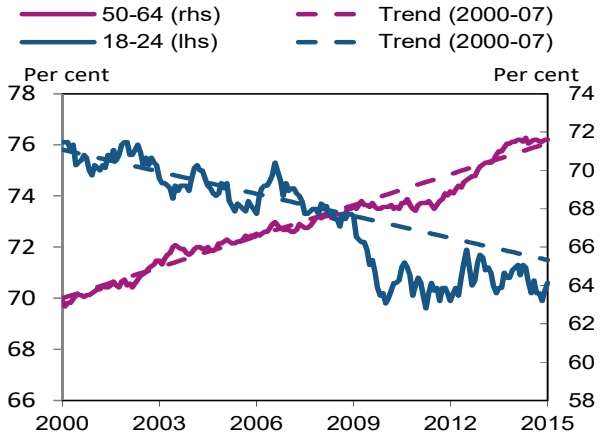


Figure 3: Contributions to the recent fall in activity by age

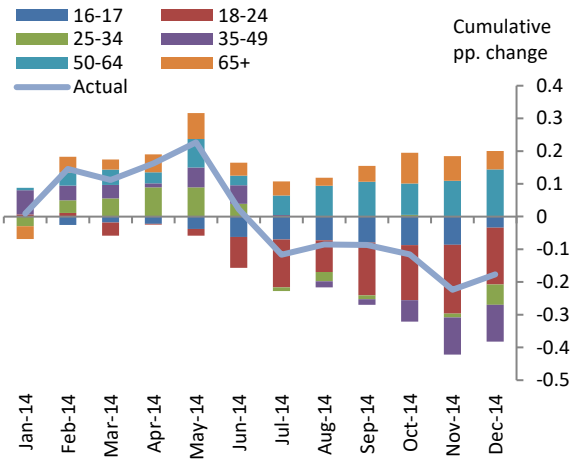
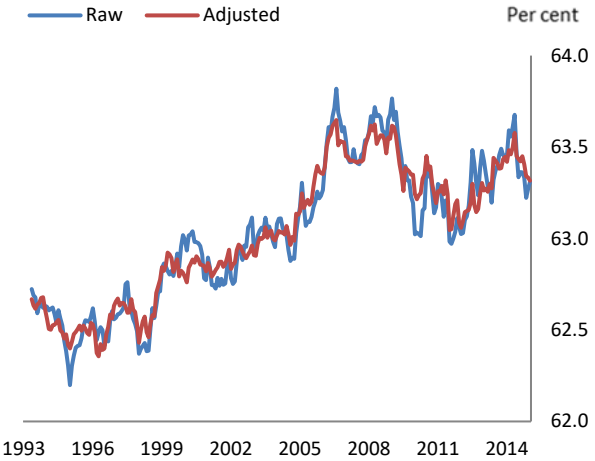


Figure 4: Adjusting participation for variability in students and long-term sick[1]



Between 2012 and the first half of 2014, the participation rate recovered to 63.7%, consistent with levels observed prior to the recession. This is despite the fact that strong effects from an ageing

[1] The adjusted series is calculated by adding the cyclical component, computed using a standard HP filter, of inactive students and the long-term sick to the aggregate number of participants and normalising by the population.

population came into play during 2011, marked by a sharp rise in the 65+ share of the population. From mid-2014 onwards, however, participation reversed course, falling to 63.3% in the first month of 2015. The data are, of course, subject to sampling variability, with a 95% confidence interval of about +/-0.3pp on the level of the headline participation rate. Even within the bounds of sampling variability, the current outturn appears to be quite low, especially since it reflects the culmination of several consecutive months of weak activity rates. Nevertheless, we are not taking too strong a steer from the latest fall, for instance by interpreting it as the effects of population ageing coming through much earlier than anticipated, since a large fraction of the decline in the aggregate activity rate since mid-2014 is accounted for by a drop in 18-24 activity (Figure 3). In addition, looking through some of the high frequency volatility in students and the long-term sick (the two most volatile sub-components of inactivity) results in the adjusted path in Figure 4, for which the more recent outturns do not appear that far off from pre-crisis levels.

Figure 5: Labour force inflow and outflow probabilities (4Q MA)

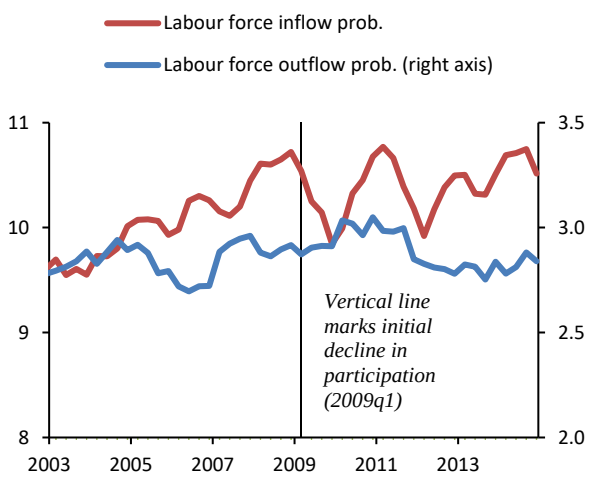
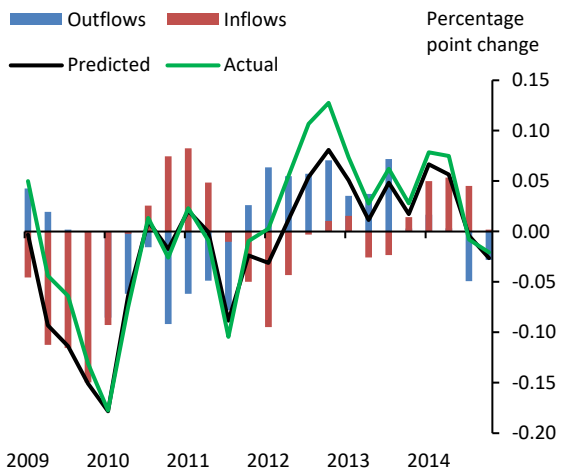


Figure 6: Decomposing labour force movements into inflows and outflows[2]



Figures 5 and 6 summarise the broad movements in labour force participation over the course of the recession by using a flows-based decomposition similar to Smith (2011).[3] Although the flows data are noisy, the picture is one of depressed labour force inflows at the onset of the recession as fewer jobs became available, followed shortly thereafter by an increase in outflows (possibly linked to early retirement). Much of the subsequent strength in participation from 2012-2013 is accounted for by a reduction in labour force withdrawal, which is likely to be connected to the very rapid rise in 50-64 participation over this time period (see Figure 14). In contrast, participation had been rising over the

[2] The predicted changes do not completely match the actual changes due to a number of biases in the flows data, including response error (which is material for this type of data), temporal aggregation bias and biases induced by flows into and out of the working age population.
[3] Note that this exercise could only be conducted for the 16-69 population.

year to mid-2014 mainly due to relatively large inflows into the labour force from inactivity. This is likely to have been encouraged by the recovery in job creation since the trough of the recession. To the extent that the rate of increase in job creation has slowed recently as a normal level of labour market tightness has been approached, then this should be reflected in a slowing in labour force participation as well.

In the next section, we review some of the key indicators of the state of the labour market which help shed light on the amount of cyclical adjustment that is likely to remain.

2. *The cyclical recovery in participation*

Standard equilibrium unemployment theory makes a straightforward prediction about the business cycle dynamics of labour force participation—namely, participation should be higher than normal when the returns to job search are relatively high. One simple way of capturing the returns to job search is by looking at the level of labour market tightness, commonly measured as the vacancy-unemployment ratio. Figure 7 plots the cyclical components of participation and tightness. The 2008 recession was associated with a large decline in labour demand and an increase in unemployment, causing labour market tightness to drop extremely sharply. Labour force participation responded with a lag of about 9 months.

Figure 7: Cyclical fluctuations in labour force participation and market tightness[4]

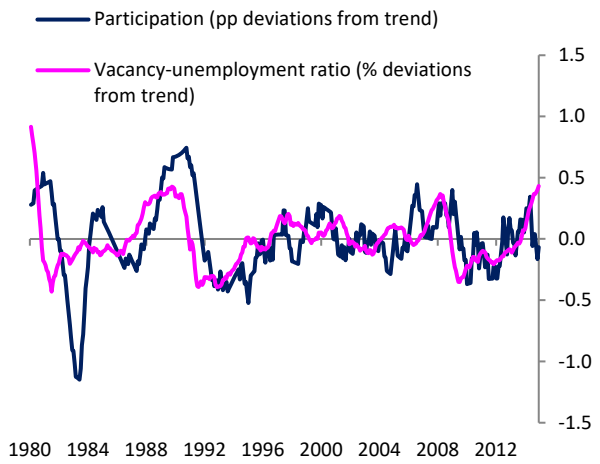


Table 1 reports the semi-elasticity of participation with respect to market tightness controlling for different trend specifications (up to a quartic time trend). The regression results indicate that a large fraction of the variation in participation can potentially be accounted for by fluctuations in tightness. Given that tightness fell by more than half (~1 log point) during the 2008 recession, the regression estimates suggest that the partial effect of tightness could have generated between 1/3pp and 1pp of downward pressure on participation, depending on assumptions about the trend. Taking the mid-point

[4] HP filtered data. Labour market tightness—the vacancy/unemployment ratio—is logged before detrending.

of these estimates suggests that around half of the cyclical rebound in participation has come through, given that the current participation rate is about 0.3pp above its trough of 63%.

Table 1 also reports coefficient estimates on the *change* in labour market tightness. If labour force entry costs were present, we would expect the participation rate to be less sensitive to fluctuations in the level of tightness (i.e., a negative coefficient on the change variable). This is what the data suggest, providing some intuition for why participation might lag behind a recovery in labour demand. However, this would not affect the long-run level to which participation would recover.

In addition, recent work by), which exploits regional variation in the data, finds effects of labour demand on the participation rate that are somewhat larger than those reported here, although he also finds (weak) evidence that the participation rate has become less sensitive to labour demand more recently. In particular, he finds that a demand shock which raises employment by 1pp raises the participation rate by 0.4 to 0.6pp, with the 0.4pp lower bound obtained from a specification which arguably captures the cyclical relationship between employment and participation better.[5] Given that the employment rate has risen by around 2pp from a trough of 57.8%, this would imply a cyclical rebound in participation of between 0.8 to 1.2pp from a trough of 63%, assuming the entire rise in employment was due to a cyclical increase in labour demand. This approach implies significant scope for a continuation of the cyclical rebound in participation, and represents an upside risk to the numbers in Table 1.

Table 1: Regressions of participation on tightness

	Trend specification				
Semi-elasticity	No Trend	Linear	Quadratic	Cubic	Quartic
Level of tightness	0.32	0.34	0.40	1.05	0.98
Change in tightness	-2.39	-2.40	-2.04	-4.96	-4.94
Note: point estimates all significant at the standard levels of confidence.					

3. *People on the margin of participation*

Statistical agencies distinguish between states of unemployment and inactivity by means of a question on search effort; those individuals who are out of employment but have not undertaken active job search in the last four weeks are classified as inactive. However, this may not be the most useful classification method from the perspective of understanding changes in the labour force. In this

[5] The coefficient of 0.6 is obtained from a model which estimates the relationship between participation and employment in levels, and the 0.4 coefficient is for a model estimated in differences.

section, we show that non-participants can be divided into two distinct sub-groups—the marginally attached and the ('truly') inactive, each displaying distinct labour market behaviour. In particular, the marginally attached—defined as non-participants who nevertheless declare they would like a job—bear more in common with the unemployed than other non-participants do.

Marginally attached individuals can be thought of as being at the margin of participation, with small changes in personal circumstances being sufficient to induce them to enter the labour force. In contrast, other non-participants are likely to be further away from the margin of participation, requiring a large change in the value of non-market activity or a highly attractive job offer to induce them to enter the labour force. Figure 8 shows what might be called the *marginal attachment rate*—that is, the ratio of the marginally attached to the population. From 2005, marginal attachment was basically flat but spiked up during the recession and has since mostly fallen back. That might suggest no participation gap at all.

The data shown in Figures 9 and 10, which plot transitions from marginal inactivity and inactivity to employment and unemployment, support this view. Marginal non-participants are far more likely to enter the labour force in the near future than other inactive people are. The average probability that a marginal non-participant enters the labour force in the following quarter is 14% over the sample, whereas it is only 8% for the inactive types who do not express a desire to work. Furthermore, the manner in which non-participants are likely to enter the labour force is substantially different for the marginally attached and the inactive. If the marginally attached decide to participate, they are much more likely to do so by entering into unemployment rather than employment. The converse is true for the genuinely inactive, who are more likely to enter participation through a direct transition to employment. That would be consistent with such people only entering the labour force if they receive a lucrative job offer. Figure 11 reveals that the jump up in the degree of labour force attachment from Figure 8 following the recession occurred because fewer marginally attached individuals moved into less-attached inactivity. This tendency reversed during the recovery phase as those individuals who exited the labour force during the recession but still remained relatively attached to the labour market have now re-entered participation, resulting in the typical non-participant being relatively less attached to the labour market now.

Figure 8: Marginal attachment-population ratio (16-64 population)[6]

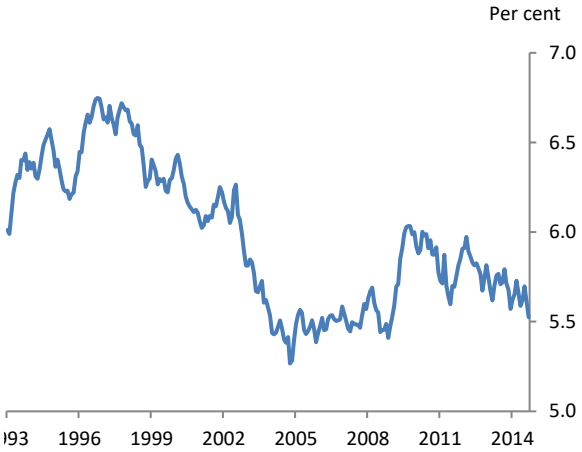


Figure 9: Transitions from marginal inactivity into the labour force

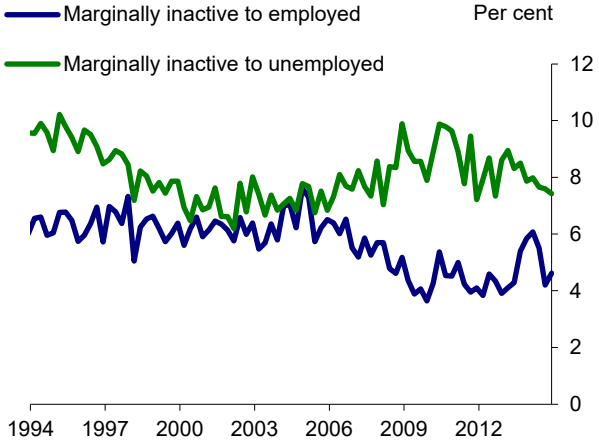


Figure 10: Transitions from inactivity into the labour force

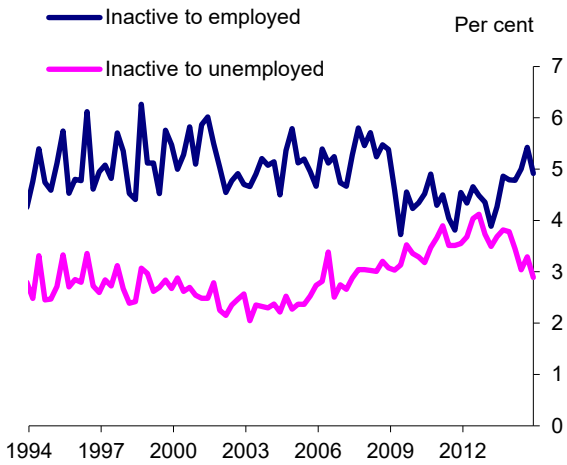
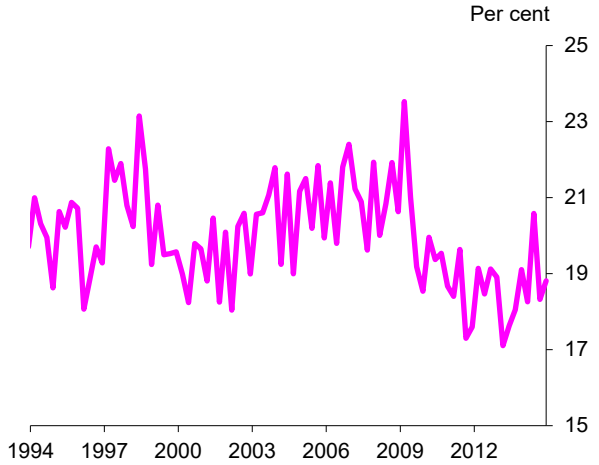


Figure 11: Probability of moving from marginal to total inactivity



It might also be interesting to consider the degree of attachment from the perspective of labour force withdrawal from unemployment. Whether or not the long-term unemployed are at the margins of the labour market has been a topic of considerable interest during the recent recession (Krueger, 2014). It has been argued that the incidence of labour force exit is higher for the long-term unemployed. As Figures 12 and 13 show, however, the UK data suggest that the long-term unemployed are no less likely to exit the labour force than the short-term unemployed are, whether to become marginal participants or completely inactive. In fact, if anything, the long-term unemployed are *less* likely to transition into inactivity. One possible explanation for this is that an individual's degree of attachment is unobservable and uncorrelated with success at finding a job. Put differently, if a person who has

[6] The numerator of this ratio is the number of inactive people aged 16-64 who declare they would like a job. The denominator is the 16-64 population.

been unemployed for longer than 12 months has still not decided to leave the labour force, then—all else equal—that person probably possesses greater labour force attachment than the average short-term unemployed person. Another possible explanation, however, is that a larger fraction of the short-term unemployed are students or other groups that have relatively attractive non-market opportunities. Nevertheless, that the unconditional unemployment—inactivity flow probability is higher for short-term unemployment stands in contrast to the commonly held perception that the long-term unemployed are much closer to the margins of participation.

The uptick in transition rates from unemployment to inactivity (both for the short- and long-term unemployed) may at first seem counterintuitive as the labour market recovers. This is recognised in the literature as being due to a compositional effect over the business cycle. A large wave of layoffs at the onset of a recession causes a surge of highly attached individuals to enter unemployment, raising the average degree of labour force attachment of the unemployed. As the labour market recovers, this effect gradually wears off (Elsby et al., 2013).

Figure 12: Labour force exit rates from short-term unemployment

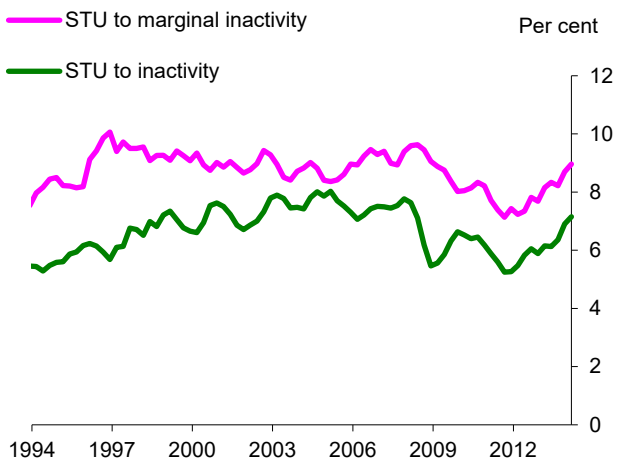
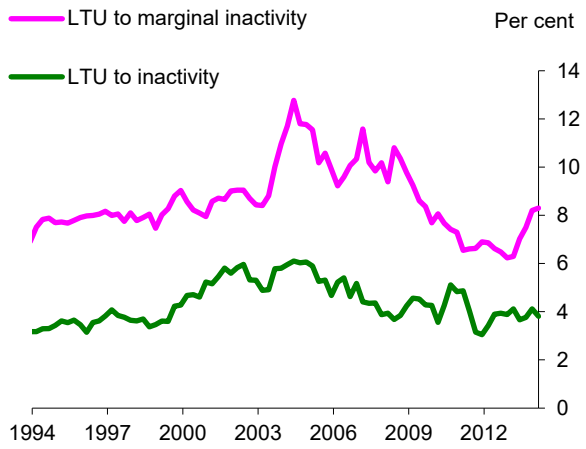


Figure 13: Labour force exit rates from long-term unemployment



In sum, various cyclical indicators appear to be consistent with a relatively small remaining labour force participation gap. Specifically;

- There appears to be little evidence of significant forthcoming inflows into the labour force from discouraged workers, with the measure of inactive people declaring that they would like a job close to pre-recession levels.
- Job openings have recovered considerably since the recession's trough, implying that the incentives to enter the labour force are unlikely to strengthen much further.

- While the participation rate for those aged 18-24 displayed a significant downward movement at the onset of the recession, it has since regained most of its lost ground relative to the pre-crisis trend. Other age-specific activity rates do not appear to be below trend either.

Table 2 summarises the quantitative implications of these cyclical factors. On balance, the proposal is for a participation gap of 0.2pp in 2015q1 with trend participation at 63.5%, close to the level prevailing in the run up to the crisis.

Table 2: Summary of metrics for the remaining cyclical recovery in participation

Metric	**Estimate (pp)**
Inactive who would like a job	0
Deviation of 18-24 participation from pre-crisis trend	0.1 to 0.2
Time series estimates of cyclical response	0 to ½
Cohort model	0.3
Regional panel estimate	½ to ¾
Proposed gap	**0.2**

4. *Secular trends*

Overall, UK participation dynamics have been shaped by two opposing forces. On the one hand, an ageing population is expected to pull down aggregate participation. But on the other hand, age-specific participation rates among older workers have been rising over the past two decades, offsetting demographic drag. Figure 14 shows the extent to which the older population is becoming more active and the younger population less so.

These dynamics are captured by the cohort model which we use in order to forecast trend participation based on micro-econometric regressions of participation rates on individual characteristics (for further detail). This type of statistical model relates individual labour force outcomes to demographic characteristics such as age, gender, and year of birth, as well as controls for the aggregate state of the economy (e.g. unemployment and asset prices). The method is based on a standard approach in the literature used to estimate the structural pattern of labour force participation (see, for example, Aaronson et al., 2012). The model predicts a mild increase in structural participation over recent years (Figure 15). This is due to effects like increased longevity being estimated to slightly outweigh the downward pull of population ageing. The profile of participation over the future is forecast to be quite flat, with demographic drag beginning to dominate in 2018.

Figure 14: Cumulative (percentage point) changes in age-specific participation rates

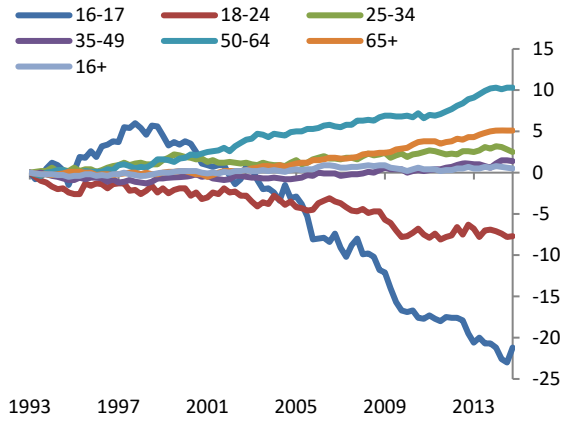


Figure 15: Change in structural participation

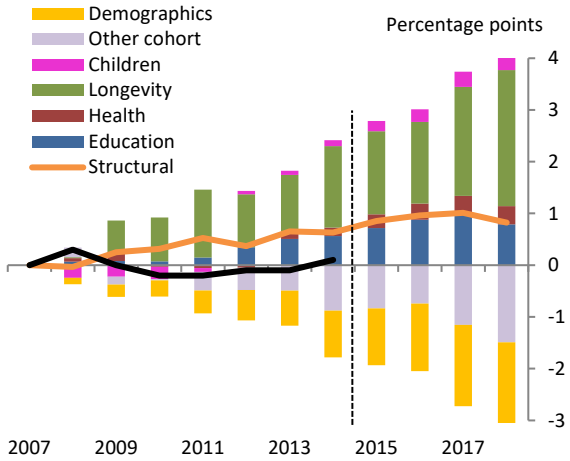
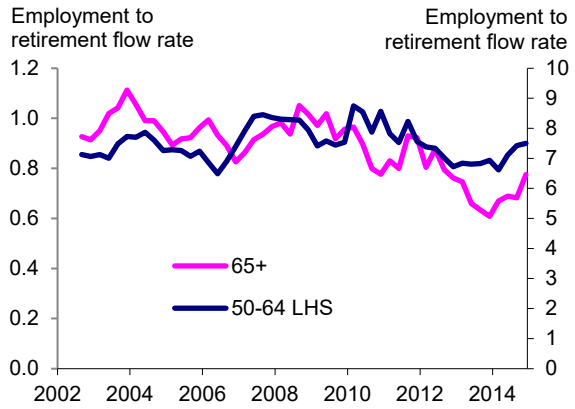


Figure 16: Retirement rates of older workers



It now seems as though we may have slightly overestimated the quantitative structural contribution over the past few years given the weakness of the more recent data. The mild upward slope of the structural component of participation in Figure 15 mainly reflected rising longevity, which is in turn manifested in rising participation rates of older workers. But as Figure 14 shows, the 50+ participation rates have flattened off recently. This flattening off coincided with a recovery in the retirement rates of older workers which displayed some cyclicality during the recession (Figure 16).

Figures 17 and 18 project forward simple trends in two different ways. In Figure 17 we extrapolate age-specific activity rates based on linear trends calculated over 2000-2007 and combine the paths for these activity rates with ONS population projections. This exercise generates a broadly flat profile for aggregate participation, illustrating that we only need pre-crisis trends in age-specific participation rates to continue for the activity rate to be flat. Figure 18 illustrates what participation rate the labour market would eventually converge to if flow rates across labour market states remained fixed at their average 2014 values. Normally, this 'flow steady state' tends to be a useful leading indicator of the future direction of the actual stock, since it takes time for the stock to settle down at a new steady

state. Recent labour market flows therefore do not foreshadow an abrupt change of direction, and are also consistent with a flat profile over the near-term (if anything, pointing to some slight weakness relative to the latest actual outturn).

Figure 17: Projection of participation rate assuming 2000-07 age-specific trends persist

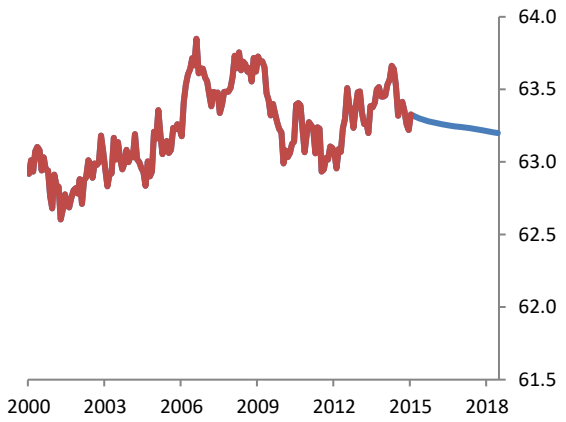
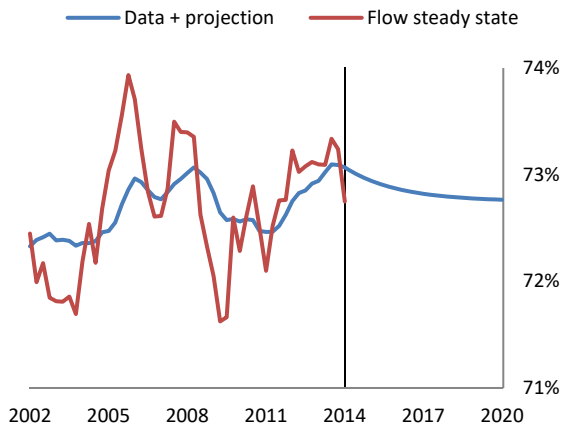


Figure 18: Steady state participation rate based on latest flows (16-69 population)



5. *Conclusion*

Taking a bottom-up approach to judging the potential remaining gap in labour force participation reveals that there is unlikely to be much further scope for increases in the activity rate in the medium term. At 63.3%, the latest outturn would imply a participation gap of 0.5pp relative to the trend published in the February *IR*. Although any estimate of trend is uncertain, our current view is that the more recent labour market data seem to point to a smaller participation gap of about 0.2pp, as depicted by the new trend line in Figure 19. This constitutes a downward revision to trend of 0.4pp by the end of the forecast.

Looking at the business cycle dynamics of participation, with labour market tightness and measures of marginal labour force participants normalising in line with pre-crisis levels, the scope for further short-term strength from a cyclical rebound appears to be limited. Thinking of more secular forces, population ageing combined with a continuation of pre-crisis trends in age-specific participation rates suggests a flat outlook over the forecast horizon until demographic drag inevitably begins to dominate.

Thinking about the risks to our proposed profile for trend participation, it is possible to motivate both upside and downside scenarios. On the upside, the very strong rise in the 65+ participation rate in recent years could continue. As Figure 20 shows, labour force participation among the 65+ age group has been accelerating for a few years, although it did flatten off in the most recent data. On the

downside, age-specific participation rates among older workers may continue to flatten off, leading to demographic drag becoming the dominant force. We currently view these risks as being broadly balanced.

Figure 19: Revision to trend participation

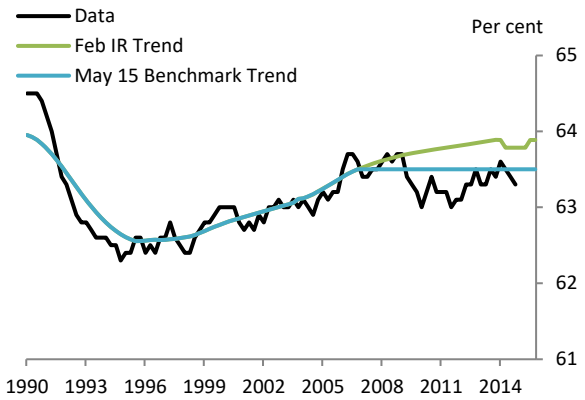
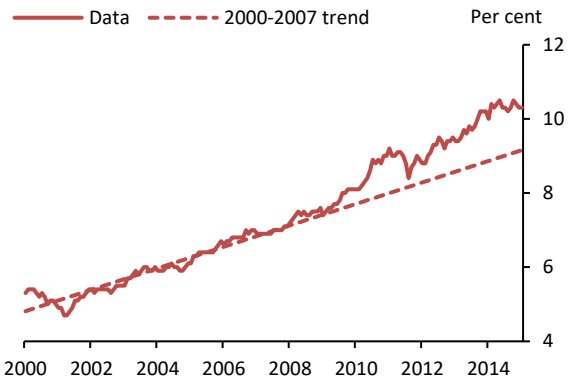


Figure 20: 65+ participation rate



References

Aaronson, Daniel, Jonathan Davis and Luojia Hu (2012), "Explaining the Decline in the U.S. Labor Force Participation Rate." Federal Reserve Bank of Chicago, Chicago Fed Letter, No. 296.

Elsby, Michael W. L., Bart Hobijn and Aysegul Sahin (2013), "On the Importance of the Participation Margin for Labor Market Fluctuations", Federal Reserve Bank of San Francisco, Working Paper No. 2013-05.

Krueger, Alan B., Judd Cramer and David Cho (2014), "Are the Long-Term Unemployed on the Margins of the Labor Market?", Brookings Papers on Economic Activity, Spring 2014.

Smith, Jennifer (2013), "The Ins and Outs of UK Unemployment", University of Warwick, Working Paper.