LEARNING AND WORK INSTITUTE

Facing the future

Technical Report

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Prince's Trust

HSBC UK

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About HSBC UK

This report is supported by HSBC UK. In partnership with the Prince's Trust since 2012, they have helped more than 50,000 young people access skills-training and employment opportunities, including in key sectors such as digital and the green economy.

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Introduction

Our full report – *Facing the Future: Employment prospects for young people after Coronavirus* – contains estimates of the cost of higher young unemployment due to the impact of the Coronavirus pandemic. This technical report sets out the methodology for the calculation of these costs.

Higher youth unemployment potentially creates three types of cost:

- Economic Costs: the output that is lost because more young people are unemployed rather than being in work.
- Fiscal Costs: the loss of tax receipts and additional social security benefits that are paid out as a consequence of more young people being unemployed.
- Long Run Scarring Costs: the long run anticipated future impacts of youth unemployment on individuals' subsequent chances of being in paid work and their wage levels when in work.

This analysis estimates these three types of cost of higher youth unemployment based on our labour market outlook for the 2021 to 2025 period. It should be noted that these different types of costs cannot be added together. They relate to different concepts and adding them together would make no logical sense and would not constitute any sort of total cost of youth unemployment.

Table 1 shows the actual level of youth unemployment (age 16-24) and the youth unemployment rate in 2019, our pre-pandemic base year, and our projections for youth unemployment and the youth unemployment rate in 2021, 2023 and 2025. These projections are based on the economic outlook produced by the Office for Budget Responsibility (OBR) in March 2021 for the Budget. Youth unemployment is assumed to account for 37 percent of the total unemployment projected by the OBR for 2021, 2023 and 2025 in line with recent data.

Table 1: Youth Unemployment (16-24) 2019-25

Year	Unemployment Level (thousands)	Unemployment Rate
2019	487	11.4%
2021	717	16.6%
2022	757	17.5%
2023	659	15.4%
2024	582	13.8%
2025	568	13.5%

Note: The figures are annual averages for the years in question. Source: L&W calculations

The economic, fiscal, and long run scarring costs of higher youth unemployment compared to the 2019 pre-pandemic position are estimated. For example, in 2021 the level of youth

unemployment is projected to be 230,000 higher than it was in 2019 and the youth unemployment rate is projected to be 5.2 percentage points higher than it was in 2019.

Economic Cost

The estimated economic costs in terms of the loss of economic output consequent on higher youth unemployment is based on the loss of earnings that it is estimated that these young workers would have earned if they had been working rather than unemployed. The method for calculating these costs is set out for 2021. In 2021, the level of youth unemployment is projected to be 230,000 higher than it was in 2019. This consists of 40,000 aged 16-17 and 190,000 aged 18-24.

If these workers were employed, then they would be unlikely to be paid the average wage for their age group. Unemployment is much more likely to affect workers with lower earnings capacity. Previous research suggests that entry level hourly wages for workers coming from unemployment are around the 20th percentile of the wage distribution[1]. Data from the 2020 Annual Survey of Hours and Earnings (ASHE) indicates that the 20th percentile of gross hourly earnings for 16-17 year olds and 18-24 year olds[2] were £4.55 and £8.10 respectively. Data from ASHE 2020 also indicates that the average weekly hours of work for 16-17 year olds and 18-24 year olds were 15.2 and 30.0 hours respectively. Combining these hourly wage and weekly hours figures gives estimates of weekly earnings for 16-17 year olds and 18-24 year olds of £69.16 and £242.85 respectively. Combining these weekly earnings figures with the additional numbers of young unemployed people who could otherwise be in work and multiplying by 52 to give an annual gives an estimate of the loss of wages due to higher youth unemployment of £2.5 billion. Finally, an estimate of the loss of economic output or GVA needs to be calculated. Data from the Annual Business Survey indicates that the five-year average of the ratio of GVA to wage costs for 2014-18 was 2.3. Hence this ratio was applied to give an estimate of the loss of economic output due to higher youth unemployment of £5.9 billion in 2021.

The same method as specified above for 2021 was applied to generate estimates of the loss of economic output due to higher youth unemployment in 2023 and 2025. This gave figures of £4.4 billion and £2.1 billion respectively. For these calculations we used the same 2020 wage figures. This has the advantage of putting the estimates for the three years in the same 2020 prices, so that they are not affected by inflation. It also implicitly assumes that the real wages of those aged 16-24 are constant over the period 2021-25. This is not an unreasonable assumption. In the four years 2016 to 2020, the real wages of

[1] See Gregg, P. Knight, G. and Wadsworth, J. (1999), 'The cost of job loss', in Gregg P. and Wadsworth J. (ed) (1999), 'The State of Working Britain', and Faggio G. Gregg P. and Wadsworth J. (2011) 'Job tenure and job turnover' in Gregg, P and Wadsworth, J (ed) (2011) 'The Labour Market in Winter: The State of Working Britain'.

[2] ASHE does not provide separate data for the age group 18-24. Hence, a figure here is estimated using the average of the figures for those aged 18-21and 22-29.

16-17 year olds stayed constant whilst the real wages of those aged 18-24 fell slightly by less than 1%[3].

Fiscal Cost

The estimates of the fiscal costs of higher youth unemployment have two components: the loss of tax revenues because more young people are unemployed rather than working and the cost of the social security benefits that are paid to these additional young unemployed people.

Loss of Revenue

The November 2020 OBR Economic and Fiscal Outlook projected that tax and other revenues as a percentage of GDP in 2021, 2023 and 2025 would be 36.2%, 38.4%, and 39.1% respectively. These figures are applied to the estimates of the loss of economic output in these three years to produce an estimate of the revenues that are lost as a result of higher youth unemployment. This gives estimates for 2021, 2023 and 2025 of £2.1 billion, £1.7 billion, and £0.8 billion respectively. This approach which, in principle, covers all types of receipts means that the impacts on both direct taxes, such as income tax, and indirect tax, such as VAT, are picked up in our estimates.

Benefit Payments

In 2021, youth unemployment, 16-24, is projected to be 230,000 higher than it was in 2019. Not all of these additional young unemployed people will claim or indeed be able to claim unemployment related benefits. Individuals aged under 18 are, apart from exceptional circumstances, unable to claim social security benefits. In 2019, our pre-pandemic base year, the ratio of the claimant count to youth unemployment for those aged 16-24 was 44%. Hence, we assume that 44% of the 230,000 additional young unemployed people or 102,000 young people claim Universal Credit (UC). The current UC standard allowance for people aged under 25 is £342.72 per month. This includes a £20 per week uplift to UC which the Government introduced as part of its measures to tackle the impacts of the COVID-19 pandemic. The 2021 Budget announced that this uplift would end after September 2021. Hence, we assume that thereafter the UC standard allowance falls to £256.05 per month. We assume that the UC standard allowance is the level of benefit that is claimed. This implicitly assumes that all young people are living at home with their parents and claim as single people rather than as part of a couple. This is a simplifying assumption for the purposes of analysis. This approach yields estimates of additional benefit payments of £0.4 billion, £0.2 billion, and £0.1 billion for 2021, 2023 and 2025 respectively.

[3] Given the nature of the calculations undertaken, wages here are the 20th percentile of the wage distribution (entry level wages). Real wages are calculated using the GDP deflator as the measure of prices. As the wage figures are used to estimate the losses of economic output due to higher youth unemployment the GDP deflator as an output price deflator is the appropriate measure of inflation to be used rather a measure of consumer price inflation such as the CPI or RPI.

Adding together the figures for tax revenues lost and benefit payments gives the total fiscal costs of higher youth unemployment of £2.5 billion, £1.9 billion, and £0.9 billion for 2021, 2023 and 2025 respectively.

Long Run Scarring Costs

A long-standing finding from previous research is that youth unemployment can have long run adverse effects on individuals' subsequent chances of being in work and, or their wage levels when in work. A number of reasons may explain how an experience of youth unemployment leads to these scarring effects. Firstly, employers may view periods of unemployment negatively, for example signalling that the individual concerned is less capable and has lower productivity. This increases the chances that a person is not hired or can only obtain a lower level, lower paid job. Secondly, an experience of unemployment at the start of their career may reduce an individual's skills and/or their confidence levels. This then impacts on their pay and/or their ability to obtain a suitable job later in life. Thirdly, success in searching for a job can depend partly on contacts with others and these may be more limited for those who suffer periods of youth unemployment.

Whatever their cause, such effects have been found for the UK and for a range of other countries. The focus below is principally on UK studies. Unless otherwise stated the research reports below relate to the UK. A brief review of some of these studies is given below. The estimation of long scarring effects by differing authors is undertaken in different ways which makes comparisons of their estimated impacts problematic. All the studies reported below control for the impact of other factors upon employment and earnings, for example the impact of differing levels of education / qualifications held.

Cribb et al (2017)[4] estimate the impacts on being in paid work and earnings of the youth unemployment rate upon entry to the labour market for all young people. They find statistically significant impacts on being in paid work for seven subsequent years and on earnings for five subsequent years. These are outlined in Table 2 below. The estimation of year by year effects is ideal for the purpose of quantifying the long run scarring effects of youth unemployment.

[4] Cribb, J., Hood, A. and Joyce, R (2017) Entering the labour market in a weak economy: scarring and insurance, IFS Working Paper W17/27

Table 2: Impact of a one percentage point higher youth unemployment rate experienced upon leaving education.

Years since leaving education	Being in paid work (%)	Earnings (%)
0	-2.6	-2.5
1	-1.7	-1.4
2	-0.8	-1.4
3	-0.7	-1.3
4	-0.4	-0.8
5	-0.4	-0.5
6	-0.5	
7	-0.7	

Source: Cribb et al (2017), L&W calculations

Mroz and Savage (2006)[5] also estimate year by year impacts of youth unemployment on subsequent labour market outcomes. This study relates to the USA. Experiencing a six month spell of unemployment at age 22 reduces the chances of being in employment for eight years and wage levels for nine years. With regard to employment the estimated impact declines from around 6% at age 23 to around 2% by ages 26 to 30. For wages, the estimated impact declines from around 8% to 9% at ages 23 and 24 to 3% to 4% by ages 27 to 31.

MacMillan (2012)[6] finds that an extra month out of work experienced between ages 16 and 24 increases the time spent out of work between ages 26 and 29 by 0.7% for both men and women. By extension a six month spell of youth unemployment is found to reduce subsequent time in work by around 4%. This study also finds that the impact of an extra month out of work experienced between ages 16 and 24 reduces subsequent average earnings between ages 30 and 34 by 0.5% for women and 0.7% for men. By extension a six month spell of youth unemployment is found to reduce subsequent wages by 3% for women and 4% for men.

Gregg (2001)[7] investigates the impact of months spent unemployed between the ages of 16 and 23 on time spent unemployed around ten years later between ages 28 and 33. An extra three months of youth unemployment leads to around an extra one and a third months out of work subsequently for men. The impact for women is around half of this.

[5] Mroz, T.A. and Savage, T.H. (2006) The Long-Term Effects of Youth Unemployment, The Journal of Human Resources, Volume 41, Number 2.
[6] MacMillan, L. (2012) The cost of youth unemployment, Annex A in ACEVO Commission Report on Youth Unemployment: The crisis we cannot afford.
[7] Gregg, P. (2001) The Impact of Youth Unemployment on Adult Unemployment in the NCDS, Economic Journal, Volume 111

Heibling at al (2019)[8] in a cross-country study investigated the impact of initial unemployment on labour market entry on subsequent unemployment. For the UK, the authors found a statistically significant impact on unemployment for nine years after labour market entry which did not decline over time: a one percentage point higher initial unemployment rate increases subsequent unemployment rates by around 0.3 percentage points.

Gregg and Tominey (2004)[9] examine the impact on wages of experiencing unemployment between ages 16 and 23. At age 33, even a relatively short period of unemployment of three to four months has a statistically significant negative impact on wage levels for both men and women. At age 42, unemployment of at least seven months is required to have a statistically significant negative impact on wage levels. To give a specific example of the results of this study: more than 12 months of unemployment between ages 16 and 23 was found to reduce wages at age 33, by 15% for women and 21% for men, and wages at 42 by 11% for women and 14% for men.

Bell and Blanchflower (2010)[10] found that experiencing unemployment up to the age of 23 reduced individuals' wages by 7% over twenty years later at the age of 46. While, Raeside et al (2014)[11] estimated that one week of unemployment between ages 18 and 24 reduced wages 10 years later by 0.5%.

The approach taken by Cribb et al (2017) is ideal for the purpose of quantifying the long run scarring effects of youth unemployment. The other studies cited here adopt different approaches to analysing the long run scarring effect of youth unemployment. Hence, it is difficult to use them to check the reasonableness of the precise estimates of the impact of youth unemployment from this study on subsequent chances of being in work / unemployed and subsequent wage levels. However, we can compare the periods over which the various studies suggest that youth unemployment impacts. Cribb et al (2017) shows statistically significant impacts on employment / unemployment over seven years whilst the other studies suggest impacts lasting for similar if slightly longer periods. For wages, Cribb et al (2017) shows statistically significant impacts for five years. Other studies suggest that impacts last for rather longer periods. In particular, both Gregg and Tominey (2004) and Bell and Blanchflower (2010) suggest that youth unemployment can impact on subsequent wage levels for more than twenty years. This suggests that using the results of Cribb et al (2017) to estimate the magnitude of the long run scarring impacts of youth unemployment is likely to lead to rather conservative or cautious estimates.

[8] Helbling, L.A., Sacchi, S., and Imdorf, C. (2019) Comparing long-term scarring effects of unemployment across countries: the impact of graduating during an economic downturn in Hvinden, B., O'Reilly, J., Schoyen, M.A., and Hyggen, C. Negotiating Early Job Insecurity, Edward Elgar.

[9] Gregg, P. and Tominey, E. (2004), The Wage Scar from Youth Unemployment, Labour Economics.

[10] Bell, D. and Blanchflower, D (2010), Youth Unemployment: Déjà vu? Stirling Economics Discussion Paper 2010-04

[11] Raeside, R., Edgell, V. and McQuaid, R. (2014) Wage Scarring – The problem of a bad start, Employment Research Institute, Edinburgh Napier University

Lost Employment Costs

Cribb et al (2017) estimates relate to the impacts on all young people entering the labour market in a period of higher unemployment. As before we estimate the impact of entering the labour market in 2021, 2023 and 2025 compared to the pre-pandemic baseline of 2019. We assume that half of young people enter the labour market at age 18 and half at age 21 – this is a simplifying assumption for the purposes of the analysis. On this basis in 2021, there will be 757,000 young people entering the labour market. Table 2 shows the estimated impact of a one percentage point higher youth unemployment rate experienced upon entry to the labour market. In 2021, our labour market outlook as set out in Table 1 suggested that the youth unemployment rate would be 5.2 percentage points higher than it was in 2019. Thus in 2021 we estimate that the chances of being in employment are around a seventh lower than they were in 2019 (=5.2*2.6% = 13.6%) which equates to lower employment in the initial year of entry to the labour market of around 103,000. In subsequent years similar calculations are undertaken, for example, five years after entry to the labour market (2026) we estimate that the chances of being in employment are around 2% lower than they were in 2019 (= 5.2*0.4%) this equates to lower employment five years after entry to the labour market of around 14,000.

As before we assume that in the absence of higher youth unemployment these young people would have been employed at entry level wages (20th percentile). Combining this wage assumption with figures for average weekly working hours by age and multiplying by 52 gives figures for the annual wage loss on entry to the labour market and for subsequent years. Finally, we again multiply this wage loss figure by the five-year average of the ratio of GVA to wage costs of 2.3 to give an estimate of the economic output that is lost because of higher youth unemployment. These calculations are repeated for the seven years subsequent to labour market entry for which Cribb et al estimate a statistically significant impact on employment. Table 3 sets out the detail of these calculations for those entering the labour market in 2021. For example, in 2021 itself this loss of output is estimated at around £2.2 billion and five years subsequently is estimated at around £0.5 billion.

Table 3: Estimated losses of economic output due to the impact of higher youth unemployment in 2021 on being in paid work

Years from labour market entry	Reductions in paid work (Thousands)	Hourly Wages	Weekly Hours of Work	Annual Wage Loss (£m)	Loss of economic output (£m)
0	-103	£6.98	25.7	-£963	-£2,220
1	-68	£8.10	30.0	-£865	-£1,994
2	-32	£8.10	30.0	-£401	-£925
3	-26	£8.10	30.0	-£326	-£751
4	-17	£9.21	34.3	-£277	-£639
5	-14	£9.21	34.3	-£228	-£526
6	-20	£9.21	34.3	-£326	-£752
7	-28	£9.21	34.3	-£456	-£1,052

Source: L&W calculations based on Cribb et al (2017) and ONS data.

In order to express these output losses in a single figure we calculate the net present value (NPV) of the above output loss figures. This involves discounting[12] the output loss figures back to 2019. For this we use a 3.5% real discount rate as per the official guidance set out in the Treasury Green Book guidance. This process gives a NPV of the lost economic output due to lower employment levels of around £8.1 billion.

The above calculations are repeated for 2023 and 2025 and yield estimates of the NPVs of the lost economic output due to higher youth unemployment of £5.9 billion and £3.1 billion respectively.

Lost Wage Costs

As well as reduced levels of employment, Cribb et al (2017) estimated the impact of higher youth unemployment on the wages of those who are in employment. Again, the details of our calculations for 2021 are set out below. In 2021, we project that the youth employment rate will be around 52%. With 757,000 young people entering the labour market, this equates to around 396,000 entrants to the labour market in work. These young people will have a range of earnings capacities so here it is appropriate to assume that in the absence of the impact of higher youth unemployment on labour market entry that these young people would overall have earned wages at the average for their age group. On labour market entry in 2021, average youth wages are estimated to be £9.61. In 2021, we project that the youth unemployment rate would be 5.2 percentage points higher than it was in 2019. Thus in 2021 we estimate, using the estimated impact set out in Table 2, that wages are 13% lower than they would otherwise have been (=5.2 x 2.5%). This translates into an hourly wage reduction of £1.24. Combining this wage assumption with figures for average weekly working hours by age and multiplying by 52 gives figures for the annual wage loss

[12] Discounting in this way is based on the notion of time preference – that in general people prefer to receive benefits now rather than later.

on entry to the labour market and for subsequent years. We, then, again multiply this wage loss figure by the five-year average of the ratio of GVA to wage costs of 2.3 to give an estimate of the economic output that is lost because of higher youth unemployment reducing wages. These calculations are repeated for the five years subsequent to labour market entry for which Cribb et al (2017) estimate a statistically significant impact on employment. Table 4 sets out the detail of these calculations for those entering the labour market in 2021. For example, in 2021 itself this loss of output is estimated at around £1.5 billion and five years subsequently is estimated at around £0.7 billion. Again, the NPV of these output losses is calculated and is estimated at around £6.3 billion. Repeating these calculations for 2023 and 2025, we get estimates of the NPVs of the lost economic output due to higher youth unemployment of £4.5 billion and £2.3 billion respectively.

Table 4: Estimated losses of economic output due to the impact of higher youth unemployment in 2021 on wage levels.

Years from labour market entry	Average Hourly Earnings	Lost Hourly Wages due to Scarring	Weekly Hours of Work	Annual Wage Loss (£m)	Loss of economic output (£m)
0	£9.61	-£1.24	25.7	-£659	-£1,520
1	£11.87	-£0.85	30.0	-£524	-£1,208
2	£11.87	-£0.88	30.0	-£542	-£1,250
3	£11.87	-£0.80	30.0	-£497	-£1,145
4	£14.13	-£0.58	34.3	-£412	-£951
5	£14.13	-£0.40	34.3	-£285	-£657

Source: L&W calculations based on Cribb et al (2017) and ONS data.

We can now add together these two estimates of the long run scarring effects of youth unemployment on the chances of being in paid work and on wages levels when in work to arrive at an estimate of the overall long run scarring effect of higher youth unemployment in 2021, 2023 and 2025 respectively. This gives estimates of £14.4 billion, £10.4 billion, and £5.4 billion.

Summary

Three types of costs flowing from higher levels of youth unemployment have been calculated for 2021, 2023 and 2025. These are the Economic Costs in terms of the immediate economic output that is lost because more young people are unemployed rather than being in work, the Fiscal Costs, the loss of tax receipts and additional social security benefits that are paid out as a consequence of more young people being unemployed, and finally the Long Run Scarring Costs: the future impacts of youth unemployment on individuals' subsequent chances of being in paid work and their wage levels when in work. The results of our calculations are set out in Table 5. It should be emphasised that these different types of costs cannot be added together. As they relate to

different concepts then adding them together would make no logical sense and would not constitute any sort of total cost of youth unemployment.

Table 5: Summary of the costs of higher youth unemployment

Year	Economic Cost (£bn)	Fiscal Cost (£bn)	Long-run scarring costs (£bn)
2021	5.9	2.5	14.4
2022	6.9	2.9	
2023	4.4	1.9	10.4
2024	2.4	1.1	
2025	2.1	0.9	5.4

Source: L&W Calculations