



The Impact of Apprenticeship Funding Cuts in Wales

A Cebr report for Cardiff and Vale College (CAVC)

January 2024

© Centre for Economics and Business Research Ltd

- 3
- 4
- 5
- 6
- 7

Methodology

Results – overall loss in economic output

Results – costs of funding cuts by industry

Results – costs of funding cuts by deprivation decile

Contact

Methodology

- Our analysis focuses on the economic impact of the projected loss of 10,000 apprenticeships in Wales due to funding cuts. We measure the impact in terms of the loss in economic output, which includes both immediate impacts, measured through Gross Value Added (GVA) contributions lost through the loss of apprenticeship activity, and longer-term effects on productivity due to delayed entry into the workforce and reduced skill levels. [1]
- Data on apprentices and their characteristics were provided by CAVC. This included the average salary of apprentices by age bands, sectors and deprivation levels. We used public data from the ONS Annual Survey of Hours and Earnings (ASHE) to estimate average salary by age ranges in Wales; and the Annual Business Survey (ABS) to estimate the earnings-GVA ratio of workers in Wales. As ONS only collects data on workers aged 18 or more, for the purpose of this analysis, we assume that apprentices start work at 18.
- We grouped apprentices into two segments: those who enrol in an apprenticeship at the age of 18-24 and those who enrol in at the age of 25 or more. The methodology of the two groups are slightly different. When analysing the short-term impacts for the younger age band, we assume that the economic costs consist of the cost of a potential worker not being employed for a short period. In this case, we assume that individuals aged 18-24 will be unemployed for one year without the apprenticeship, while those aged 25 or more (who are assumed to be already employed and pursuing an apprenticeship at their existing workplace) will still work, but they will not benefit from the salary (and thus, productivity) increase that an apprenticeship would have provided. Therefore, for the older age group, both the short- and the long-run impacts are the difference in productivity between an apprentice and a non-apprentice.
- To calculate the longer-term impact for workers aged 18-24, we assume the effects of learners spending one year in unemployment are felt through a lower GVA contribution by affected workers, stemming from the fact that their experience, skills and therefore productivity are one year 'behind' compared to those who were not made redundant. For the purpose of our research, we looked at the long-term impact in two different scenarios.
 - The first scenario looked at a persistent lag of productivity between workers who completed an apprenticeship and workers who didn't. Assuming that this young labour force would have been out of work for one year, we project that, due to the skills gap, the employees lag one year behind in terms of productivity. This means, for example, that a 20-year-old worker would produce the same as a 19-year-old who had not been made redundant.
 - In this scenario, an assumption of partial relative convergence in productivity is made. As GVA per worker increases over time, some of the initial loss will be bridged. However, productivity remains below where it would have been until around the age of 50, at which point the data suggests that average productivity per worker peaks. From this point onwards, we have assumed that the average productivity of the individual under either scenario, is equalised. Put another way, the economic output of the 'actual' and 'counterfactual' workers is equal by this stage, irrespective of the lost year of employment.
 - The second scenario employs a different methodology, allowing for growth in skills to the relevant age once re-employed. Skills that would have been developed in the year of unemployment are gradually caught up over the course of the individual's career. Informed by productivity literature, labour productivity is estimated to converge to a steady-state level by 8.6% per annum. [2] Given this, the effects of the reduced GVA contribution per employee are not permanent. Rather, over the remaining years within the workforce, the individual almost completely recovers their lost productivity.
 - While the interpretation is different, we apply the same long-run scenarios to the workers aged 25 or more. Unlike the younger age group, they are not left unemployed for a year. The loss of productivity only stems from the lack of experience and skills from not being able to secure an apprenticeship. Due to this, the effects of the funding cuts will be less impactful for this age range.
 - For simplicity, we assume that workers in the younger-age group start their apprenticeship at the age of 18 or those in the older-age group start at 25.

[1] GVA, or gross value added, is a measure of the value of production in the national accounts. Conceptually it can be considered the value of what is produced, less the value of intermediate goods and services used to produce it. GVA is distributed in three directions – to employees, to shareholders and to government. It is often used as the proxy for the contribution of a sector or industry to GDP: strictly this relationship is $GVA + \text{Tax on products} - \text{Subsidies on products} = \text{GDP}$.

[2] Ahmad. N., & Naveed. A. (2016). 'Labour productivity convergence and structural changes: simultaneous analysis at country, regional and industry levels'. *Economic Structures*. 5(19).

Results – overall loss in economic output

The economic impact of cutting 10,000 apprenticeships amounts to approximately £84.1 million in lost GVA in the short run, while in the longer term, the potential lifetime loss in economic output could reach up to £406.8 million.

- The average salary of workers aged 18-21 in Wales is £11,251 based on ONS data and Cebr analysis. This increases to £17,573 in case someone enrolls in an apprenticeship.
- Considering the short-run as a one-year period, the potential economic loss associated with a one-year average time spent unemployed is **£17,298 per apprentice** among workers who would have started an apprenticeship at the age of 18. Overall, if we add up all these workers whose jobs were lost due to the funding cuts, this accounts for **almost £84 million**. This value is inclusive of the government’s 3.5% present value discount rate.
- The average salary of workers aged 22-29 is £22,779 (we consider this the base for those aged 25+). For apprentices aged 25 and above, the average salary is £22,800, which represents only a 0.1% increase. Due to this, the economic loss from the apprenticeship cuts among workers aged 25 and more is very low (with the per-worker loss in the short run amounting to only £21). Adding up these workers, the overall cost amongst the older-age group is £108,120. In total, **the short-run economic cost of cutting 10,000 apprenticeships is close to £84.1 million**.
- In the long-run, under the first scenario, where there is a persistent lag, the estimated long-term cost of the reduction in productivity is £319.5 million among 18-year old workers, and £3.2 million among 25-year olds. The second scenario, where we incorporate the skills growth, leads to a more conservative estimate of economic loss of £212.5 million. Out of this, £211.2 million is associated with workers who couldn’t have an apprenticeship at the age of 18, and £1.2 million with those who would have started an apprenticeship at 25.
- Summing these figures up, the total economic loss in the first scenario is £406.8 million, while in the more conservative second scenario it amounts up to £296.5 million.

Table 1: The economic costs of the loss of productivity due to the loss of apprenticeships, present value

Age group	Short term loss	Long-term loss – Scenario 1 (partial convergence)	Long –term loss – Scenario 2 (convergence with skills development)	Total loss (Scenario 1)	Total loss (Scenario 2)
18-24	£83,982,460	£319,516,533	£211,233,461	£403,498,993	£295,215,921
25 and above	£108,120	£3,160,841	£1,220,357	£3,268,960	£1,328,476
Total	£84,090,579	£322,677,374	£212,453,818	£406,767,953	£296,544,397

Results – costs of funding cuts by industry

The economic impact of the funding cuts would be most pronounced in the Health sector, followed closely by the Construction sector

- Table 2 provides the results of the apprenticeship funding cuts broken down by 1-digit level SIC industries. Based on the data received from CAVC, the **GVA loss is the highest in Human health and social activities**, which is the second largest sector in Wales. Among 18-year old apprentices, this sector represented more than a quarter, 25.6% of all losses. This equates to £105.1 million in scenario 1 and £76.3 million in scenario 2. Among workers starting an apprenticeship at 25, the share is even higher: more than half (53.7%) of the total loss is associated with this industry (£1.8 million in scenario 1, £0.7 million in scenario 2).
- The construction sector suffers the most after the health industry. Overall, 24.6% of GVA loss will be in this sector (24.7% among 18-year old apprentices, 3.4% among 25-year olds). The overall loss is £99.9 million under scenario 1 with no skills development, and £73.1 million under scenario 2 with skills development.
- The Professional, scientific and technical activities sector has the third largest loss, with £69.6 million under scenario 1 and £50.7 million under scenario 2. This represents 17.1% of all losses.
- According to the most recent ONS data, the largest sector in Wales is Manufacturing, with £12.0 billion in GVA generated in 2021. This represents 17.3% of Wales' total GVA. However, only 3.3% of the total GVA loss is experienced in that industry (£6.7 million/ £4.8 million). Furthermore, Wales' third biggest sector, Real estate activities) will not experience any direct loss in output due to the funding cuts, as there are no apprentices in that industry. This suggests that the apprenticeship funding cuts are disproportionately affecting smaller industries, and has much less effect on the biggest ones.

Table 2: The economic costs of the loss of productivity by industry

SIC	GVA loss	
	Scenario 1 (partial convergence)	Scenario 2 (convergence with skills development)
Agriculture, Forestry and Fishing	£10,192,061	£7,448,650
Manufacturing	£6,657,669	£4,846,833
Construction	£99,945,566	£73,087,569
Wholesale and retail trade; repair of motor vehicles and motorcycles	£13,529,834	£9,889,251
Transportation and storage	£467,505	£325,510
Accommodation and food service activities	£21,979,442	£16,033,495
Information and communication	£5,202,877	£3,794,850
Professional, scientific and technical activities	£69,630,869	£50,739,470
Administrative and support service activities	£38,775,707	£28,280,146
Human health and social work activities	£105,088,299	£76,315,897
Arts, entertainment and recreation	£10,274,675	£7,482,223
Other service activities	£25,023,451	£18,300,505
Total	£406,767,953	£296,544,397

Source: ONS, CAVC, Ahmad and Naveed (2016) and Cebr analysis

Results – costs of funding cuts by deprivation decile

Funding cuts would disproportionately affect the most deprived segments of the Welsh population

Table 3: The economic costs of the loss of productivity by deprivation decile

Deprivation decile	Scenario 1 (partial convergence)	Scenario 2 (convergence with skills development)
Total	£406,767,953	£296,544,397
1st – most deprived	£45,020,097	£32,820,820
2nd	£47,929,739	£34,942,024
3rd	£44,649,779	£32,550,848
4th	£46,078,149	£33,592,167
5th	£39,571,131	£28,848,382
6th	£42,956,897	£31,316,693
7th	£40,523,378	£29,542,594
8th	£36,132,464	£26,341,504
9th	£35,444,730	£25,840,128
10th – least deprived	£28,461,589	£20,749,237

- Table 3 shows the GVA loss broken down by deprivation deciles. The first deprivation decile represents the bottom 10% of the population, the second the 11-20th percentile and so on.
- **The second decile would suffer the most from funding cuts**, as the GVA loss from that demography will be the highest, with £47.9 million under the first scenario, and £34.9 million under the second. This represents 11.8% of all losses.
- **The most deprived decile accounts for the third highest loss**, as 11.1% of GVA loss is from this decile. This equals to £45.0 million and £32.8 million under the first and the second scenario, respectively.
- **The bottom 40% (first four deciles) will experience the most loss**, as the four deciles in this demography have the first, second, third and fourth highest GVA loss due to funding cuts. Adding them up, they represent 45.2% of all losses (£183.7 million under the first, £133.9 under the second scenario).
- **The GVA loss is expected to be the lowest amongst the least deprived.** The 10th percentile will experience a GVA loss of £28.5 million under the first, and £20.7 million under the second scenario.
- Overall, we can conclude that funding cuts would result in a disproportionate GVA loss within the most deprived deciles. This underscores the heightened vulnerability of this demographic, given that **affected apprentices are predominantly concentrated in the bottom 40%**. Consequently, the funding cuts would unevenly diminish their employment prospects.

Contact

- Economic Advisory Team
- advisory@cebr.com

Disclaimer

Whilst every effort has been made to ensure the accuracy of the material in this document, neither Centre for Economics and Business Research Ltd nor the report's authors will be liable for any loss or damages incurred through the use of the report.

Authorship and acknowledgements

This report has been produced by Cebr, an independent economics and business research consultancy established in 1992. The views expressed herein are those of the authors only and are based upon independent research by them. The report does not necessarily reflect the views of ACI Worldwide.

London, January 2024

© Centre for Economics and Business Research Ltd
www.cebr.com