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OBR model overstates economic output of recent migrants by over £8bn, since 2019.

Assumptions made by the UK's economic forecaster about the working profile of recent migrants have overstated their economic output.

The Office for Budget Responsibility (OBR) has incorrectly assumed that the working pattern of recent migrants (those arriving in the last 12 months) are the same as the UK population at large.

Visa requirements, unaccounted for in OBR modelling, mean its assumption that recent migrants have the same participation rate, and work the same weekly hours, as the existing UK workforce is wrong.

This means that, since 2019, the OBR's model has attributed an additional 246-million-man hours to recent migrants that, legally, could not possibly have been worked.

By using ONS figures for output per hour worked, we estimate that this error equates to £8.36bn of overstated value-added since 2019.

The OBR's model places the total output of all hours worked by recent migrants at £182.8 billion between 2019 and 2023. We have found that this output is, in reality, £174.6bn.

Our findings come just weeks after 46 MPs wrote to the Chancellor to warn him that the OBR's forecasting errors may hamper the UK's economic recovery.¹

They cited a report by the Conservative Way Forward group which found that the OBR has overestimated economic growth by over half a trillion pounds since 2010, and that its track record on forecasting public sector net borrowing was equally poor.²

Last month the head of the OBR, Richard Hughes admitted that the OBR's economic forecasts in 2023 had been a "work of fiction" and blamed the body's failures on the government's inability to provide accurate expenditure plans.³

These findings also come after it was revealed that in 2022 Treasury officials had told ministers, including Rishi Sunak, that boosting immigration would have a "high impact" on the economy and come at a "low" fiscal cost.⁴

Problem

As explained below, the OBR assumes that, upon entering the UK, recent migrants fall into the same trends of workforce participation, employment rate, and average hours worked, as the existing labour supply.

¹ [Senior Tories warn Hunt that OBR errors may hamper UK's economic recovery \(telegraph.co.uk\)](https://www.telegraph.co.uk/politics/2023/07/19/senior-tories-warn-hunt-that-obr-errors-may-hamper-uk-economic-recovery/)

² [Home | CWF \(conservativewayforward.com\)](https://www.conservativewayforward.com/home/)

³ [Head of OBR says lack of budget details led to 'work of fiction' forecasts last year | Tax and spending | The Guardian](https://www.theguardian.com/tax-and-finance/2023/07/19/head-of-obr-says-lack-of-budget-details-led-to-work-of-fiction-forecasts-last-year)

⁴ [Boost immigration instead of cutting taxes, Sunak told by Treasury officials \(telegraph.co.uk\)](https://www.telegraph.co.uk/politics/2023/07/19/boost-immigration-instead-of-cutting-taxes-sunak-told-by-treasury-officials/)

However, this fails to acknowledge that individuals on student visas are only permitted to work 20-hours a week during term time.⁵

Those on student visas are a growing proportion of all migrants now entering the UK, representing around a third of all the total recent migrant population. As the OBR's March '23 forecast states "the latest visa data suggest that work visas made up just 20 per cent of the total visas issued in 2022, study visas 30 per cent, and non-work non-study visas – including dependent, Ukraine and British National Overseas visas – 50 per cent."⁶

ONS visa data, used by the OBR, shows that the percentage of all recent migrants (not just the net total) who are students – and therefore legally restricted to work 20 hours per week – is between 34% and 51% in the years 2016 – 2022.

This figure compares with just 23% of the entire UK population who work similarly limited hours (less than 30 hours a week) according to ONS data.

It means that, taken as a whole, the average hours which can be worked by migrants is structurally less than the UK workforce average.

OBR Methodology for potential output

The OBR says: "Our forecast for potential output underpins our expectation for the level of aggregate real GDP in the medium term and is, therefore, one of the most important drivers of our fiscal forecast."

"To produce it, we start with a projection for labour supply, constructed by combining estimates of (i) the size of the adult population, with (ii) the proportion of those who actively participate in the labour market (the participation rate), (iii) the equilibrium share of those participants who are able to find employment, and (iv) the equilibrium average hours worked."

At the heart of these forecasts are the ONS' Labour Force Survey: "the Labour Force Survey (LFS)...is the primary source of our population and labour market data."⁷

Size of the adult population

The OBR explains that "when constructing our potential output forecast, we normally use ONS population projections as the basis for our population growth forecast."

Its assumptions about the overall level of net migration are also drawn from the ONS' "estimates of international migration".⁸

⁵ See explanation by University of Edinburgh: [Working in the UK during studies | The University of Edinburgh](#)

⁶ [Economic and fiscal outlook - March 2023 \(obr.uk\)](#)

⁷ [CP 944 – Office for Budget Responsibility – Economic and fiscal outlook – November 2023 \(obr.uk\)](#)

⁸ [2020-based interim national population projections: year ending June 2022 estimated international migration variant - Office for National Statistics](#)

The OBR then combines these two variables (population projection and international migration projection) to produce the anticipated size of the population that are aged 16+ for a given year.

As an aside, the ONS, and therefore the OBR, have a well-documented tendency to underestimate the level of net migration, which affects the accuracy of their forecasts.⁹

Participation rate

“The participation rate is the proportion of the population that is active in the labour force – that is they are either employed or unemployed and actively looking for work.”¹⁰

The OBR assumes that the participation rate of recent migrants aged 16+ will be the same as the UK population as a whole, as indicated by the ONS’ Labour Force Survey, which is 63%.¹¹

However, the OBR itself says that this may be an overestimate: “those that arrive as students, dependants, or for other reasons tend to have below average labour participation rates, albeit with some convergence in recent years. As the LFS sampling is likely under-representing students and dependants, who have lower participation rates than workers, the average participation rate for all migrants is probably an overestimate.”¹²

And further adds that “there is considerable uncertainty around the participation rate of inward migrants, which could be higher or lower than we have assumed.”¹³

Share of those in employment

The OBR assumes that, of those participating in the workforce, the unemployment rate is approximately 4.2%, which is based on the UK average.¹⁴

However, ONS labour market statistics released on 16 January show that the “unemployment rate by nationality (16+)- Non-UK national” is actually 5.8%.¹⁵

Average Hours worked

The OBR’s macroeconomic model, upon which it bases its forecasts, uses an “imposed variable” to represent the average number of hours worked.¹⁶

Imposed variables are described as “variables that appear in the model (but) are actually determined outside it”.¹⁷

Indeed, the OBR makes it clear that “Forecasts of potential growth and its components (including labour supply and hours worked) are constructed outside the macroeconomic

⁹ [Net migration to the UK - Migration Observatory - The Migration Observatory \(ox.ac.uk\)](https://www.migrationobservatory.ox.ac.uk/)

¹⁰ [Labour market - Office for Budget Responsibility \(obr.uk\)](https://obr.uk/labour-market/)

¹¹ [CP 944 – Office for Budget Responsibility – Economic and fiscal outlook – November 2023 \(obr.uk\)](https://obr.uk/cp944/)

¹² [CP 944 – Office for Budget Responsibility – Economic and fiscal outlook – November 2023 \(obr.uk\)](https://obr.uk/cp944/)

¹³ [Economic and fiscal outlook – November 2023 - Office for Budget Responsibility \(obr.uk\)](https://obr.uk/economic-fiscal-outlook-november-2023/)

¹⁴ [CP 944 – Office for Budget Responsibility – Economic and fiscal outlook – November 2023 \(obr.uk\)](https://obr.uk/cp944/)

¹⁵ [Labour market statistics time series - Office for National Statistics \(ons.gov.uk\)](https://ons.gov.uk/labour-market-statistics-time-series/)

¹⁶ [The macroeconomic model \(obr.uk\)](https://obr.uk/the-macroeconomic-model/)

¹⁷ [The macroeconomic model \(obr.uk\)](https://obr.uk/the-macroeconomic-model/)

model; accordingly much of the labour market forecast is determined outside the model. Many of the labour market aggregates in this group are therefore imposed.”¹⁸

The OBR notes that there are other methods but that it chooses to continue with the imposed variable approach: “there are a range of methods that we could use, many of which do not lend themselves well to inclusion in a large-scale macroeconomic model.”¹⁹

The imposed variable data for average hours comes from two ONS datasets.²⁰ These are:

- “YBUV” which is the “avg actual weekly hours of work: UK: All workers in main & 2nd job”.²¹
- And “YBUS” which is “Total actual weekly hours worked (millions): UK: All”.²²

These two datasets are drawn from the ONS’ Labour Market Survey which makes the calculation using data subsets on age, gender, and occupation field. It does not, however, collect data on the particular working patterns of recent migrants.²³

This means that the data used in the OBR’s model for average hours worked does not have a means through which to factor in the different working patterns of migrants.

Our methodology

Size of the adult population

Our analysis does not seek to examine the underlying assumptions that were made by the OBR in its combination of population projection and migration projection data.

This study only focuses on the number of recent migrants that are arriving each year, and is therefore only analysing the figure for gross inward migration. Data on the number of visas awarded is set out in the OBR’s November 2023 forecast²⁴:

	Work	Study	Dependent	Humanitarian	Other	Temporary work	Total
2019Q4	96,138	388,363	186,260		3,200	84,217	758,178
2020Q4	54,431	230,982	135,398		1,614	38,623	461,048
2021Q4	111,661	380,624	241,005	75,579	2,506	86,593	897,968
2022Q4	196,643	489,127	371,418	263,400	3,838	103,109	1,427,535
2023Q2	245,935	503,145	479,343	127,455	5,017	111,167	1,472,062

Table 1

Participation rate

Although the OBR itself admits that it will be overstating the number of migrants who are participating in the labour market, in this study we use its data for sake of simplicity.

¹⁸ [The macroeconomic model \(obr.uk\)](#)

¹⁹ [The macroeconomic model \(obr.uk\)](#)

²⁰ [The macroeconomic model \(obr.uk\)](#)

²¹ [OBR macroeconomic model - Office for Budget Responsibility](#)

²² [LFS: Total actual weekly hours worked \(millions\): UK: All: SA - Office for National Statistics](#)

²³ All datasets can be seen here: [All data related to earnings and working hours - Office for National Statistics \(ons.gov.uk\)](#)

²⁴ [Economic and fiscal outlook – November 2023 - Office for Budget Responsibility \(obr.uk\)](#)

It therefore works on the basis that the participation rate of all recent migrants for the years since 2019 has been as follows (again, drawn from the OBR's EFO)²⁵:

Participation rate by migration reason						
	Employment	Study	Dependants	Other	All migrants	UK population
2019Q4	96.0	29.8	47.9	47.7	64.2	64.0
2020Q4	95.5	35.9	48.2	33.3	63.8	63.7
2021Q4	90.8	51.1	53.4	43.5	64.1	63.2
2022Q4	92.9	44.8	56.9	53.3	65.0	63.1
2023Q2	92.9	48.5	61.7	52.4	67.5	63.3

Table 2

Combining the number of visas awarded (table 1), with the assumed participation rate of the OBR (table 2), allows us to see how many recent migrants the OBR assumes is entering the workforce.

The result is the following assumption:

	Participating				Total assumed workers
	Work	Study	Dependants	Humanitarian and asylum	
2019	173,140.80	115,732.17	89,218.54		378,091.51
2020	88,866.57	82,922.54	65,261.84		237,050.94
2021	180,014.63	194,498.86	128,696.67	32,876.87	536,087.03
2022	278,469.61	219,128.90	211,336.84	140,392.20	849,327.55
2023	331,747.76	244,025.33	295,754.63	66,786.42	871,527.71

Table 3

Share of those in employment

Again, although the OBR underestimates the percentage of non-UK nationals who are unemployed, this study does not look to examine that discretion.

Instead, it will assume, as the OBR does, that recent migrants have the same unemployment rate (4.2%) as the UK workforce as a whole.

This leaves an employment rate of 95.8%- and can be converted into actual workers by multiplying this percentage by the figures in table 3, as calculated above.

	Employment				Total assumed employed
	Work	Study	Dependants	Humanitarian and asylum	
2019	165,868.89	110,871.42	85,471.36	-	362,211.67
2020	85,134.17	79,439.79	62,520.84	-	227,094.80
2021	172,454.02	186,329.91	123,291.41	31,496.04	513,571.38
2022	266,773.88	209,925.48	202,460.69	134,495.73	813,655.79
2023	317,814.35	233,776.26	283,332.94	63,981.39	834,923.55

Table 4

²⁵ [Economic and fiscal outlook – November 2023 - Office for Budget Responsibility \(obr.uk\)](https://obr.uk/economic-fiscal-outlook-november-2023/)

Average Hours worked

We are now left with the number of recent migrant workers that the OBR assumes are in employment for each year from 2019.

As set out above, the OBR then makes the decision to accredit to all employed recent migrants the same weekly hours worked as the UK average (ONS dataset 'YBUV').

The figures on the assumed hours worked per week, as provided by the ONS, are set out in the supplementary economic tables of the OBR's most recent EFO:

	Average hours	Total hours
2019Q4	31.9	1050.1
2020Q4	30.1	968.1
2021Q4	31.6	1029.8
2022Q4	31.6	1035.6
2023Q2	31.8	1046.4

Table 5

By multiplying table 4 with table 5 we can see the OBR's assumptions about the total number of hours worked by recent migrant workers per week:

	Assumed hours worked per week				Total assumed hours
	Work	Study	Dependants	Humanitarian and asylum	
2019	5,291,217.48	3,536,798.38	2,726,536.43	-	11,554,552.29
2020	2,562,538.64	2,391,137.72	1,881,877.25	-	6,835,553.61
2021	5,449,546.95	5,888,025.21	3,896,008.55	995,274.76	16,228,855.47
2022	8,430,054.75	6,633,645.24	6,397,757.95	4,250,064.99	25,711,522.93
2023	10,106,496.40	7,434,085.11	9,009,987.38	2,034,608.21	28,585,177.10

Table 6

However, the figures for those on study visas are inflated.

As show in table 7 (below), the number of average hours worked by those on student visas is sizeably smaller than what is assumed by the OBR. This is because those on student visas can only work a maximum of 20 hours per week during term time.

Assuming that all those on a student visa, and in employment, are working the maximum allowance of 20 hours the figures are as follows:

	Actual hours worked per week				Total hours	Average per migrant
	Work	Study	Dependants	Humanitarian and asylum		
2019	5,291,217.48	2,217,428.45	2,726,536.43		10,235,182.36	27.07065
2020	2,562,538.64	1,588,795.83	1,881,877.25		6,033,211.72	25.45112
2021	5,449,546.95	3,726,598.23	3,896,008.55	995,274.76	14,067,428.50	26.24094
2022	8,430,054.75	4,198,509.65	6,397,757.95	4,250,064.99	23,276,387.34	27.40567
2023	10,106,496.40	4,675,525.23	9,009,987.38	2,034,608.21	25,826,617.22	29.63373

Table 7

All columns remain the same as table 6, apart from “study” which has seen a reduction in the number of hours worked.

The final column of table 7 “average per migrant” shows, when factoring in this limitation, how many hours the average migrant in employment will work a week.

The total discrepancy between OBR assumptions and actual outturn is then deduced by comparing table 6’s “total assumed hours” column with table 7’s “total hours”.

This produces the following overestimates, per week:

Weekly overestimate	
2019	1,319,369.93
2020	802,341.89
2021	2,161,426.98
2022	2,435,135.60
2023	2,758,559.88

Table 8

Multiplying these weekly overestimates by 26 (the total number of term weeks during a year, and in which migrants on student visas have their hours capped) produces the following annual overestimates:

Yearly overestimate	
2019	34,303,618.18
2020	20,860,889.22
2021	56,197,101.37
2022	63,313,525.48
2023	71,722,556.98
Grand total	246,397,691.24

As a further aside, which would further bolster the claim that the OBR is overestimating the contribution, recent migrants in full-time roles are more likely to work in professions with below-average weekly hours to begin with. This includes social care and manual labour. Recent ONS analysis showed that “the long-term decline in hours has been sharpest among low paid workers in administrative, manual or service sector jobs”.²⁶

Converting this overestimate into £ terms

To calculate the value of this overestimate, we used ONS data on “output per hour worked” in current price (£) terms.

The figures are drawn from here: [Output per hour worked, UK- Office for National Statistics \(ons.gov.uk\)](https://ons.gov.uk)

And the figures for the years 2019 to 2022 are as follows:

²⁶ [Shorter hours for men add to strains on UK labour market \(ft.com\)](https://www.ft.com)

Year	Output (£)
2019	36.48
2020	38.78
2021	39.21
2022	41.52

For sake of completion, the we assume that the output per hour in 2023 is the same as in 2022.

Using these figures in conjunction with table 6 allows us the see the value that recent migrants are assumed to have added to the UK economy, by the OBR:

	Total Weekly	Total annual
2019	£421,510,067.4	£21,918,523,504.7
2020	£265,082,769.0	£13,784,303,989.8
2021	£636,333,423.1	£33,089,337,999.1
2022	£1,008,148,814.3	£52,423,738,341.7
2023	£1,186,856,553.4	£61,716,540,774.3
Total	£3,517,931,627.1	£182,932,444,609.6

Doing the same with table 7 allows us to see the actual outturn:

	Total Weekly	Total annual
2019	£373,379,452.4	£20,667,127,513.5
2020	£233,967,950.4	£12,975,318,705.7
2021	£551,583,871.3	£30,885,849,654.3
2022	£966,435,602.3	£51,339,194,831.1
2023	£1,072,321,147.0	£58,738,620,208.4
Total	£3,197,688,023.4	£174,606,110,913.0

The difference between the total annual figures, and therefore the extent of the OBR overestimate, is £8.326bn.

