

**Technical Annex to accompany the
Impact Assessment for changes to the
Immigration Rules for Skilled Workers**

Contents

A.	Introduction	3
B.	Long-term non-EEA work baseline	4
C.	Long-term work migration – skilled workers route – EEA nationals	16
D.	Elasticity Assumptions	34
E.	Fiscal impact of migration	36
F.	Annex A: Grouping 2-digit SIC sectors into a bespoke list of sectors for migration analysis.....	41
G.	Annex B: Visa fees and Unit Costs	43

A. Introduction

1. This Technical Annex provides more information on the methodology and data sources behind modelling used within the Impact Assessment for changes to the Immigration Rules for Skilled Workers ('the Impact Assessment'). The analysis described here is designed to give an initial view on the potential scale of the economic impacts of policy changes under the Skilled Worker route. The core of the analysis does not consider how the coronavirus pandemic could affect outcomes, as it is too soon to tell what the impacts will be and how long they will persist in the labour market. However, scenario-based modelling is applied to demonstrate the uncertainty placed on work-related migration inflows due to the pandemic.
2. To determine the effects of migration policy on migration for work, the analysis begins by setting out the methodology behind the 'baseline' projection of migration flows (independent of any policy changes), before presenting the assumptions and methodology behind the estimated policy impacts on flows. The final section of this Technical Annex sets out the overarching approach to estimating the fiscal impact of policy changes.
3. There is considerable uncertainty within this modelling and there are several ways in which the uncertainty manifests itself:
 - (1) **Data sources** – imperfect data (such as the use of survey data) often mean that confidence intervals can be large;
 - (2) **Assumptions** – any modelling requires the use of evidence-based assumptions and expert judgement and migration is no exception; and
 - (3) **Behavioural response and change** – predicting response or changes to behaviour can be highly uncertain.
4. The potential impacts should be considered in the context of this uncertainty and treated as orders of magnitude rather than precise estimates.
5. Unless otherwise specified, 'EEA' refers to the 27 EU member states¹ except for the Republic of Ireland, the three additional EEA member countries, and Switzerland. The Republic of Ireland is excluded because of the existence of the Common Travel Area with the UK. Switzerland is included because whilst it is neither in the EU nor the EEA, it is part of the single market, which means Swiss nationals have the same rights to live and work in the UK as other EEA nationals.
6. Data sources used to analyse migration collect information on the basis of nationality. This information on nationality has been used to inform assessments of potential impacts discussed in this document, and the Impact Assessment. The terms 'national' and 'citizen' are assumed to be interchangeable for the purposes of analysing potential impacts discussed in this document.

¹ See <https://www.gov.uk/eu-eea> for a list of EU and EEA member countries

B. Long-term non-EEA work baseline

Long-term out-of-country non-EEA work baseline inflows modelling

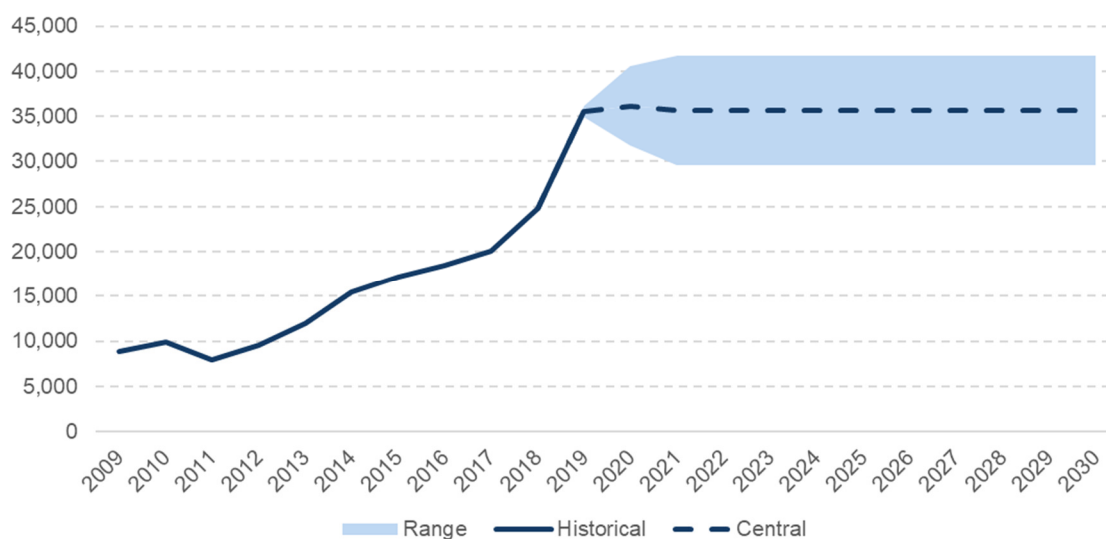
Out of Country Baseline Inflows = IVR Range × Grant Rate Assumptions

7. As non-EEA nationals are subject to immigration controls, it is not possible to estimate non-EEA inflows based on a historical relationship between migrant inflows and economic and demographic factors.
8. Instead, to project Tier 2 (General) inflows for non-EEA nationals, internal Home Office workload projections from the Immigration Volumetrics Register (IVR) are used. This projects future applications by fitting time series models to historic data². The IVR projections cover all applications (including those that are refused) and so to estimate the number of workers actually coming to the UK, the Tier 2 (General) IVR projections are adjusted for grant rates based on published Home Office immigration statistics (estimated to be 98% in 2019³).
9. Figure shows Tier 2 (General) inflows increased by approximately 44% between 2018 and 2019, predominantly due to the decision to exempt doctors and nurses from the Tier 2 (General) cap, with approximately 25,000 Tier 2 (General) visas granted in 2018 and around 35,000 visas granted in 2019. With no further policy intervention, inflows under the central scenario are projected to remain at around 35,000 per year from 2020 onwards.
10. There is a great deal of uncertainty associated with projecting future immigration flows. This uncertainty is accounted for by looking at the error between previous IVR forecasts and actual volumes at three, six, 12- and 24-month intervals after the initial forecast was made. This variance is then applied to our central estimate to give steady state inflows of between 30,000 and 40,000 workers per year in the lower and upper scenarios respectively.
11. To estimate the proportion of inflows eligible for the Health and Care visa, internal Home Office MI data between April 2019 and March 2020 is used. It is estimated that 15,000 to 20,000 of current inflows of non-EEA skilled workers would be eligible for the Health and Care visa.

² Tier 2 forecasts are produced using the Autoregressive Integrated Moving Average (ARIMA) model, which is fitted to historical time series data to predict future trends.

³ <https://www.gov.uk/government/statistics/immigration-statistics-year-ending-december-2019>

Figure 1: Range around projected non-EEA Tier 2 (General) main applicant inflows



12. Appendix J of the Immigration Rules⁴ sets out the different salary thresholds for different types of Tier 2 (General) migrants. These are defined as follows:

- **Experienced workers** are those whose salary threshold is £30,000 or the 25th percentile of the relevant Annual Survey of Hours and Earnings (ASHE) wage distribution, whichever is higher;
- **New entrants** are those whose salary is £20,800 or the 10th percentile of the relevant ASHE wage distribution, whichever is higher; and
- **Public sector occupations** are health and teaching occupations, and salary thresholds are, in general, based on public sector pay scales.

13. For simplicity, we apply the new entrant salary threshold to those aged under 26 and the experienced worker salary threshold to those aged 26 or above. Public sector workers are identified as those workers who are in occupations where the salary threshold is based on public sector pay scales. Projections are therefore split into whether a migrant is under 26, 26 or older or a public sector worker, based on internal Home Office MI.

14. Based on Certificate of Sponsorship (CoS) used in 2019/20, migrants aged over the age of 26 represent 42% of Tier 2 (General) inflows; migrants aged under 26 represent 5% of inflows; and public sector workers represent 52% of inflows⁵.

⁴ <https://www.gov.uk/guidance/immigration-rules/immigration-rules-appendix-j-codes-of-practice-for-skilled-work>

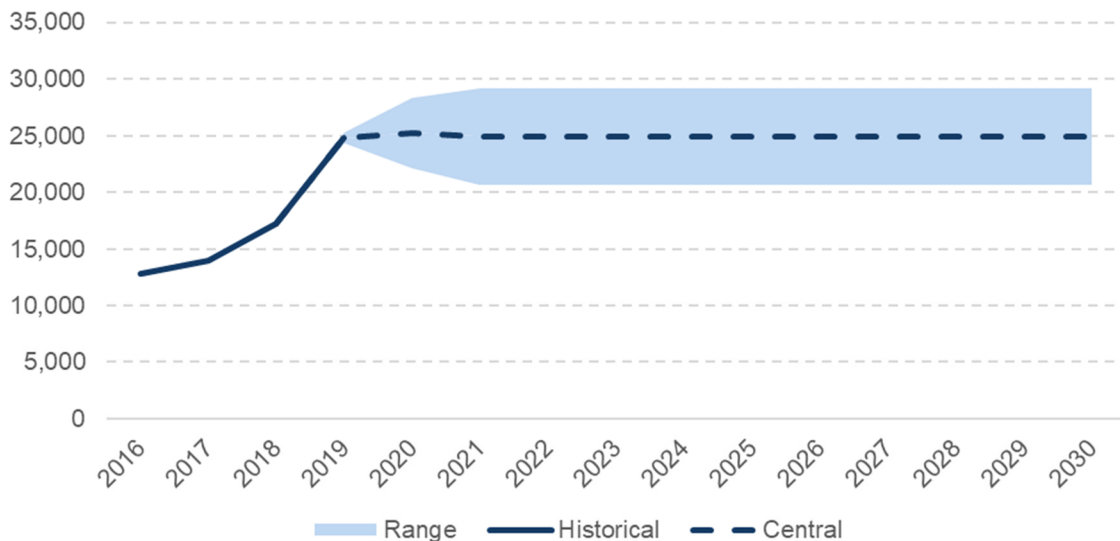
⁵ Percentages may not sum due to rounding.

Dependants

$$\text{Dependants}_t = \text{Dependant Ratio} \times \text{Out of Country Inflows}_t$$

15. The Tier 2 (General) dependant ratio is estimated to be 0.70 (i.e. for every four main applicants coming to the UK there are almost three dependants), based on the ratio of main applicants to dependants observed for Tier 2 grants in 2019⁶. This dependant ratio has been relatively stable over time; therefore, our projections assume it remains constant over the appraisal period and across scenarios. Figure shows the projected inflows of dependants, assumed to be around 25,000 per year in the central scenario. Of these inflows, it is estimated between 10,000 and 15,000 will be dependants of workers eligible for the Health and Care visa.

Figure 2: Range around projected Tier 2 (General) dependant inflows



Long-term non-EEA work baseline outflows modelling

$$\text{Outflows}_t = \% \text{ of Journeys with expired leave} \times (\text{Inflows}_t + \text{Inflows}_{t-1} + \dots + \text{Inflows}_{t-6})$$

16. To capture net migrant workers in the economy, outflows are modelled as a function of previous inflows. To link outflows to previous inflows, Migrant Journey Analysis (MJA) data is used which tracks migrants over time to look at how a migrants' immigration status changes for each of the four main categories of entry to the UK (family, work, study and dependants). This tracks the journeys of individual migrants⁷ and can be used to estimate the proportion of migrants who are assumed to have left the UK, to model outflows.

⁶<https://www.gov.uk/government/statistical-data-sets/immigration-statistics-data-tables-year-ending-december-2019>

⁷ A journey is defined as someone who has either been granted a visa product with indefinite leave to remain; or whose visa product has expired, and they have not made a subsequent application for leave to remain within a 12-month period.

17. The outflows modelling looks at a specific cohort of migrants (those who started their ‘journey’ on a Tier 2 (General) visa between 2010 and 2013⁸) and tracks the number of interactions they have with the visa system. This allows us to estimate, using the 2010-2013 cohort, the number of migrants who have switched into another route⁹, the number who have applied for an extension, the number who have applied for settlement or the number whose application has expired and not been extended (which we assume means they have left the UK). Linking the dates of these applications allows us to estimate how long after a person comes into the country these decisions are made.
18. Figure 3 shows the profile of those whose journey has completed and whose leave has expired. The proportion of migrants who leave the UK each year is modelled as a function of the inflows in that year and the previous six years. Based on these calculations, the outflows of Tier 2 (General) workers are estimated to be between approximately 15,000 and 20,000 per year in steady-state. The outflows of dependants are estimated to be between 10,000 and 15,000 workers per year in steady-state.

Figure 3: Percentage of Tier 2 (General) main applicants whose journey has completed and have expired leave:

% of those whose journey has completed with expired leave:

>6years	5-6years	4-5years	3-4years	2-3years	1-2years	<1year
4%	3%	3%	25%	11%	6%	4%

Long-term non-EEA work baseline in-country inflows modelling

$$\text{Settlement Applications}_t = \% \text{ of Journeys that settle} \times (\text{Inflows}_t + \text{Inflows}_{t-1} + \dots + \text{Inflows}_{t-6})$$

$$\text{Extension Applications}_t = \% \text{ of Journeys that extend} \times (\text{Inflows}_t + \text{Inflows}_{t-1} + \dots + \text{Inflows}_{t-6})$$

19. The MJA data allows us to model, using the 2010-2013 cohort of migrants, for those applicants who make extensions, the number of extensions Tier 2 (General) main applicants make during their stay in the UK. For each individual completed journey, it estimates (1) the number of applications a person makes and (2) how long after their initial visa application the extension was made. This allows us to estimate the proportion of migrants who extend in the UK and how long after the initial application this extension was made. The MJA data also allows us to estimate the proportion of Tier 2 (General) migrants who are ultimately granted settlement.
20. The extensions and settlement profiles are shown in Figures 4 and 5. Applications for settlement represent a significant proportion of applications after 5-6 years, reflecting the fact that Indefinite Leave to Remain can only be granted if a migrant has lived and worked in the UK for 5 years.

⁸ 2010-2013 data is observed; the latest data covers up to the end of 2018, but as it generally takes five to six years to obtain settlement, the analysis examines the cohort of people granted a Tier2 general visa between 2010 and 2013.

⁹ For simplicity, we do not include the number of people who switch into different routes within this analysis. This may slightly overestimate the number of extensions within a cohort but is not expected to significantly affect the results.

Figure 4: Percentage of Tier 2 (General) main applicants whose journey has completed who settle:

% of those whose journey has completed who settle:

>6years	5-6years	4-5years	3-4years	2-3years	1-2years	<1year
3%	37%	6%	0%	0%	0%	0%

Figure 5: Percentage of Tier 2 (General) main applicants extensions:

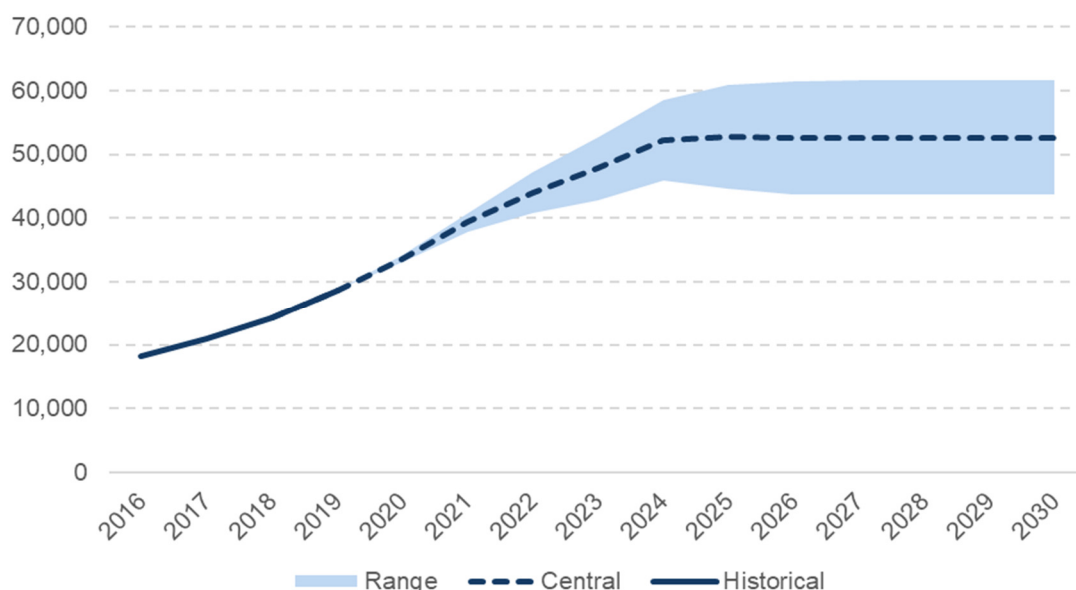
% of Tier 2 General extensions:

>6years	5-6years	4-5years	3-4years	2-3years	1-2years	<1year
1%	3%	12%	27%	33%	17%	9%

21. To determine the number of extension applications, MJA is conducted only on applications where an applicant's leave to remain is expiring and not where a valid visa is still held. Percentages in Figure 5 represent the distribution of extensions by years after the initial grant, adjusted for the propensity of applicants to extend; this distribution sums to greater than 1 as applicants can and do make multiple extensions. The propensity to extend for the 2010-2013 cohort was relatively high and on average each out-of-country application granted was followed by at least one extension.
22. These estimates do not represent the number of individual main applicants as they include a count of extensions, which can be made multiple time by the same individual over the period. These volumes can reasonably be described as inflows because they only include extensions made at the end of a migrants leave to remain, therefore extensions represent additional time in the UK beyond what was previously granted.
23. The extension and settlement profiles are applied to out-of-country inflows of non-EEA skilled worker inflows. The numbers of in-country Tier 2 (General) visa extensions from non-EEA skilled workers are estimated to be between 150,000 and 190,000 between 2021 and 2025¹⁰. In-country applications for settlement from non-EEA skilled workers are estimated to be between 60,000 and 70,000 workers between 2021 and 2025.
24. Combining volumes for visa extensions and applications for settlement, in-country inflows of Tier 2 (General) main applicants are estimated to be between 210,000 and 260,000 between 2021 and 2025.

¹⁰ This appraisal uses a 10-year period. For the purposes of analysis related to MJA, figures have been provided for 2021-2025, the length of the adjustment period.

Figure 6: Range around projected in-country Tier 2 (General) main applicant inflows



25. Using the 2010-2013 cohort means migrant behaviour and intentions are assumed to remain unchanged and unresponsive to policy changes that have taken place after 2013. The analysis excludes those who are still on a visa and anyone who started their 'journey' on a Tier 2 (General) but who switched into another route. The analysis does not adjust for those who leave before the end of their visa.

B.1. Long-term non-EEA work policy modelling

26. Predicting the impact of lowering the salary threshold (for some occupations) and skills threshold is highly uncertain because it is dependent on (1) employers' behaviour and (2) the potential supply (or pool) of eligible non-EEA labour, which are unknown. Given this uncertainty, two illustrative scenarios for a potential increase in non-EEA skilled worker migration are modelled. The first uses EEA modelling as a proxy for a potential response to policy changes, the second uses the historic skill mix of Tier 2 (General) when it was last open to RQF 3 occupations.

EEA scenario

27. This scenario uses modelled changes in EEA inflows under different policy scenarios to consider the potential scale of a non-EEA response to the proposed policy changes. The number of EEA nationals estimated to be eligible under the current Tier 2 (General) Immigration Rules (i.e. an RQF 6 skill threshold and existing salary thresholds) is compared against the number of EEA nationals estimated to be eligible under future policy (i.e. an RQF 3 skill threshold and salary thresholds outlined in the rules¹¹)¹². Applying these two scenarios to the projected EEA baseline, implies an

¹¹ <https://www.gov.uk/government/collections/uk-points-based-immigration-system-further-details>

¹² Due to the differences in how salary thresholds are applied, this is done separately for public sector occupations and all other occupations. The final uplift of ~70% is a weighted average of public sector occupations and all other occupations, based on the proportion of Tier 2 (General) inflows they make up under the baseline.

increase in eligible EEA inflows of around 70 per cent when moving from current arrangements to the future policy arrangements. This percentage change in EEA inflows gives a rough approximation of the response of labour supply to a change in skills and salary thresholds, and this scenario considers the impact on non-EEA skilled workers if a similar percentage increase was observed. There are a number of caveats associated with this approach:

- The approach relies on applying policy scenarios to a highly uncertain modelled baseline of long-term EEA inflows under Freedom of Movement.
- The increase in non-EEA skilled workers is assumed to have the same occupation and wage distributions as eligible EEA nationals. This may be an unrealistic assumption.
- This scenario is based on the simplifying assumption that there are no behavioural responses from employers or migrants, which may overstate the overall increase in non-EEA migration flows as it fails to capture potential changes in labour demand from employers. This is therefore treated as our upper range.

Historic scenario

28. In its report on the Points-Based System and salary thresholds for immigration¹³, the MAC provided an overview of the historical use of Tier 2 (General) over time and scenarios assumed in other external research papers¹⁴. It found that when Tier 2 (General) was open to medium-skilled occupations, they made up between 24 per cent and 35 per cent of all CoS used. This implies a medium to high-skilled ratio of between 1:3 and 1:2. Applying the lower ratio (i.e. around 1:3) to the current Tier 2 (General) baseline would result in an increase in current Tier 2 (General) inflows of around 32 per cent. This estimate is used as a lower scenario for the increase in non-EEA worker inflows. There are limitations with this approach:

- This scenario looks solely at the historic medium to high-skilled ratio of CoS used and the impacts if this ratio remains the same in the future. It also does not consider any differences in salary thresholds between the two periods.
- The scenario assumes historical work migration patterns are representative of future patterns.
- For simplicity, this scenario does not model the impact of changes to the salary thresholds as outlined in the rules, only changes to the skills thresholds required¹⁵.
- As above, it is assumed that the increase in skilled non-EEA workers have the same occupation and wage distributions as eligible EEA nationals. This is highly uncertain.

¹³ Migration Advisory Committee January 2020 “A Points-Based System and Salary Thresholds for Immigration” pg. 186

¹⁴ Migration Advisory Committee January 2020 “A Points-Based System and Salary Thresholds for Immigration” pg. 189
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/860669/PBS_and_Salary_Thresholds_Report_MAC.pdf

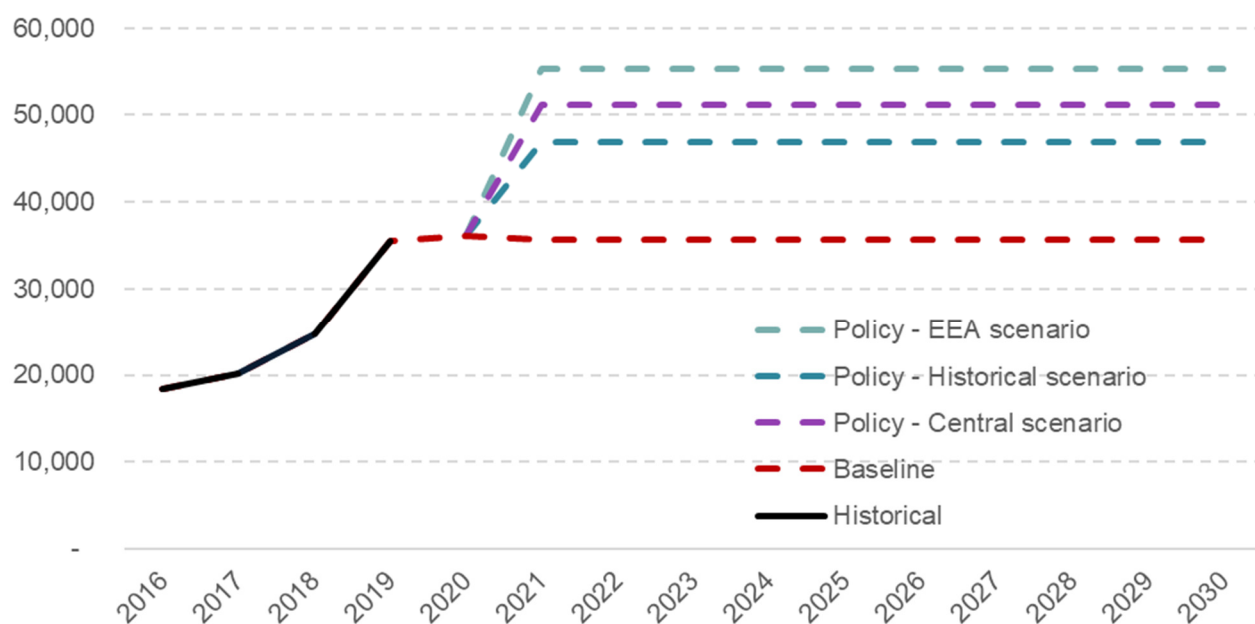
¹⁵ <https://www.gov.uk/government/collections/uk-points-based-immigration-system-further-details>

Central scenario

29. The central scenario used in this IA is halfway between the uplift in the EEA scenario and the historical scenario. This accounts for limitations of both approaches and attempts to account for the two unknown factors described above – employers' behaviour and the potential supply of non-EEA eligible labour.
30. The historical approach captures employers' behaviour by looking at the skill mix of Tier 2 (General) when it was last open to RQF 3 occupations. The EEA proxy approach, by looking at the proportion of EEA citizens eligible under current rules compared to the new rules, accounts for the potential supply of non-EEA labour. It is unclear which effect will dominate and it is therefore assumed the increase in non-EEA workers under the central scenario will be the midpoint between the two values. This means that the midpoint volume is no more likely to occur than any other value between the upper and lower estimates.
31. Figure 7 shows inflows of Tier 2 (General) migrants increase sharply following the policy change.
- Applying the EEA scenario described above to the baseline projection of non-EEA Tier 2 (General) inflows results in an estimated annual increase in non-EEA workers of between 20,000¹⁶ and 30,000 with an additional 15,000 to 20,000 dependants (using steady state figures). Under the historical scenario there is an estimated annual increase of between 10,000 and 15,000 non-EEA workers and between 5,000 and 10,000 dependants (using steady state figures).
 - Overall, applying all scenarios, inflows of Tier 2 (General) worker are expected to increase by between 10,000 and 30,000 workers annually (using steady state figures). Inflows of dependants are expected to increase by between 5,000 and 20,000 dependants annually (using steady state figures).
 - Of these additional inflows, it is estimated fewer than 5,000 workers will be non-EEA skilled workers eligible for the Health and Care visa. It is estimated fewer than 5,000 will be dependants of non-EEA skilled workers eligible for the Health and Care visa.

¹⁶ Volumes in this section are rounded to the nearest 5,000.

Figure 7: Inflows of non-EEA Tier 2 (General) main applicants under the baseline, EEA, historical and central policy scenarios (based on central baseline volume estimate)



32. These estimates are extremely uncertain and are based on illustrative scenarios that provide a sense of scale of the potential impacts. External papers that also specifically look at the potential scale of increase in non-EU migration include:

- Portes and Forte (2019)¹⁷ who assume that under a £30,000 minimum salary threshold the number of non-EU migrants increases by around 45,000 over 10 years compared to the counterfactual; and under a £20,000 minimum salary threshold the number of non-EU migrants increases by around 70,000 over 10 years compared to the counterfactual.
- The UK in a Changing Europe think tank¹⁸ assume that under a restrictive scenario that the number of non-EU migrants increases by around 65,000 over 10 years compared to the counterfactual; and under a liberal scenario the number of non-EU migrants increases by around 160,000 over 10 years compared to the counterfactual.

33. There is a lagged response in outflows of skilled workers following a policy change, reflecting the fact that a journey of a Tier 2 (General) migrant lasts up to six years. In the EEA scenario, the additional number of non-EEA workers is estimated to be between 70,000 and 100,000 higher between 2021-2025, compared to the baseline; and the number of dependants is estimated to be between 50,000 and 70,000 higher between 2021-2025, compared to the baseline.

34. Under the historical scenario, of the additional number of non-EEA workers is estimated to be between 30,000 and 50,000 higher between 2021-2025, compared to

¹⁷ https://www.wcpp.org.uk/wp-content/uploads/2019/03/FINAL-WCPP-report_Immigration-in-Wales-post-Brexit.pdf

¹⁸ <https://ukandeu.ac.uk/wp-content/uploads/2019/10/The-economic-impact-of-Boris-Johnsons-Brexit-proposals.pdf>

the baseline; and the number of dependants is estimated to be between 20,000 and 30,000 higher between 2021-2025, compared to the baseline.

Long-term non-EEA in-country work policy modelling

The same scenarios described in section B.1. are applied to the baseline in-country inflows of non-EEA skilled workers. Tier 2 (General) extensions increase sharply following the policy change, as shown in Figure 8. There is a lagged response in applications for settlement as shown in Figure 9, reflecting that settlement can only be granted to migrants who have been in the UK for over five years.

Figure 8: Tier 2 (General) main applicants' applications for extensions under the baseline, EEA, historical and central policy scenarios (based on central baseline volume estimate)

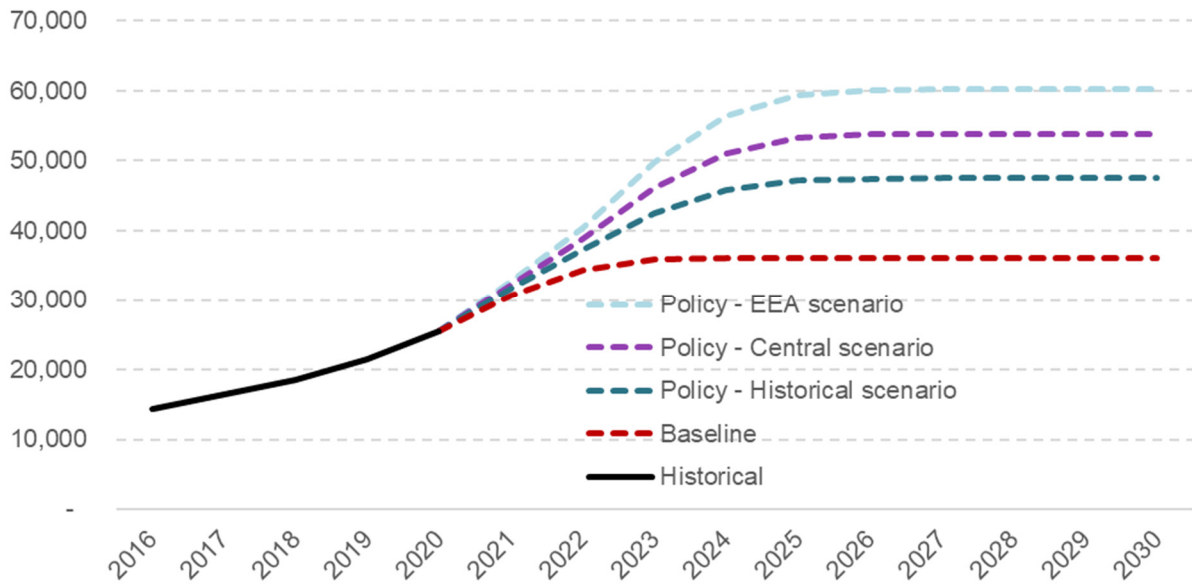
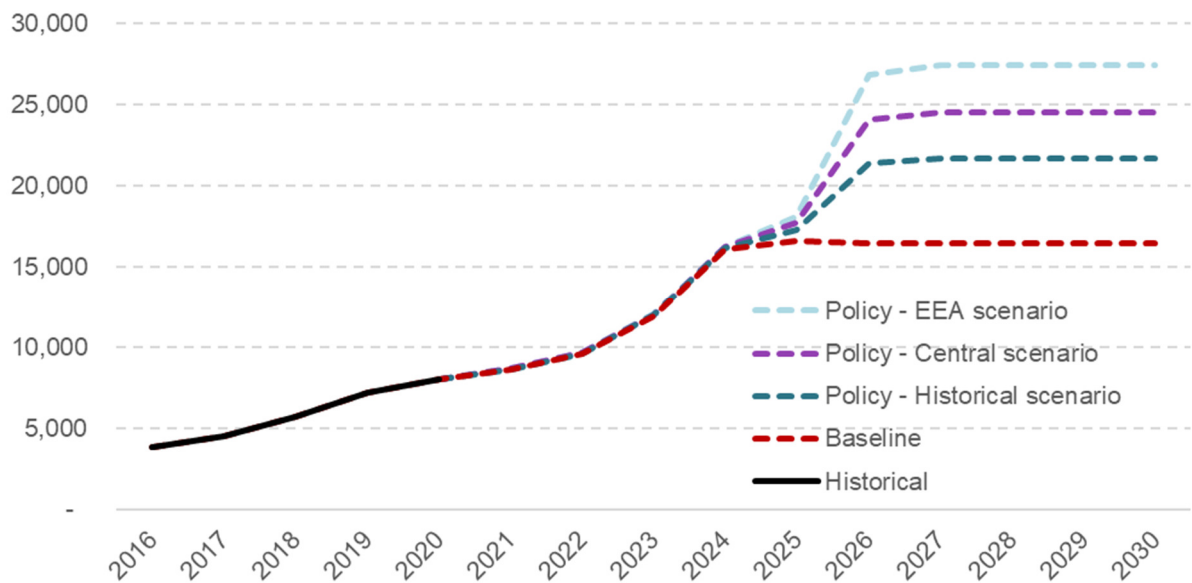


Figure 9: Tier 2 (General) main applications for settlement under the baseline, EEA, historical and central policy scenarios (based on central baseline volume estimate)



35. Combining Tier 2 (General) extensions and applications for settlement, in-country inflows are projected to increase sharply following the policy change:
- Applying the EEA scenario to the baseline projection of in-country non-EEA Tier 2 (General) inflows results in an estimated increase in in-country inflows of non-EEA workers of between 200,000¹⁹ and 280,000 workers between 2021 and 2030. Using the same scenario results in an estimated increase in in-country inflows of dependants of non-EEA workers of between 140,000 and 200,000 dependants between 2021 and 2030.
 - Under the historical scenario, the estimated increase in in-country inflows of non-EEA workers is between 100,000 and 130,000 workers between 2021 and 2030. Using the same scenario results in an estimated increase in in-country inflows of dependants of non-EEA of between 70,000 and 90,000 dependants between 2021 and 2030.
 - Volumes of in-country inflows of non-EEA skilled workers eligible for the Health and Care visa are expected to increase, however, in all scenarios, the increase in workers is estimated to be less than 30,000 workers between 2021 and 2030.

B.2. Characteristics of non-EEA skilled workers

36. Figure 10 details assumptions around the age, economic activity, occupation and wage of non-EEA workers and their dependants. These are used in estimating the fiscal impacts of non-EEA migrants.

Figure 10: Assumptions on age, economic activity, occupation and earnings for main applicants and dependants

Migrant characteristic	Main applicants	Dependants
Age	Based on Home Office MI between April 2019 and March 2020. This distribution is assumed to be the same under the baseline and policy scenarios.	Based on Home Office MI between April 2019 and March 2020. This distribution is assumed to be the same under the baseline and policy scenarios.
Economic activity	All main applicants are assumed to be employed under both baseline and policy scenarios.	We use Home Office MI to identify those who come as a child (48%) or partner dependants (52%). For partner dependants, they are split into 'employment' and 'inactive'. This breakdown is based on APS data, looking at the economic activity of non-EEA migrants who arrived after 2013.

¹⁹ All volumes in this section are rounded to the nearest 10,000.

		Of those non-EEA migrants that arrived in or after 2013 and who came to accompany and join, we estimate 41% are in employment and 59% are inactive. Of those dependants in employment, it is assumed 11% are self-employed. This is assumed the same under the baseline and policy scenarios.
Occupation	<p>Under the baseline, we use Home Office MI data between April 2019 and March 2020 to estimate the number of non-EEA workers in each occupation.</p> <p>Under the policy, additional skilled non-EEA migrants are assumed to have the same occupation distribution as EEA medium-skilled and high-skilled workers. This distribution is taken from EEA modelling described above and based on ASHE earning data and APS data on the occupation distribution resident EEA nationals²⁰.</p>	APS data over a 3-year period is used to estimate the number of non-EEA Tier 2 Partners who are employed in each occupation.
Earnings	<p>Under the baseline, wages are based on Home Office MI between April 2019 and March 2020. Under the policy, the wage distribution of additional medium-skilled and high-skilled workers is taken from EEA modelling described above.</p>	<p>The analysis assumes that those dependants who are working earn less than main applicants. A 44% income differential is applied which reflects the difference in weekly median earnings between non-EEA nationals who came to the UK to accompany/ join and non-EEA nationals who came to the UK to work. This is based on 2019 Labour Force Survey data.</p> <p>This figure is then applied to Annual Survey of Hours and Earnings (ASHE) 2019 data, which calculates an earnings distribution for working dependants.</p>

²⁰ Clergy and sportspeople are removed from the occupation distribution as these occupations are not eligible to use the Tier 2 (General) Route.

C. Long-term work migration – skilled workers route – EEA nationals

37. Modelling considers the impact of applying the Skilled Worker route skill and salary thresholds to long-term EEA worker inflows. Modelling does not include all elements of the policy. For example, the analysis does not quantify the impact of requiring a job offer or English language requirements. Analysis of tradable points has also not been included (i.e. that applicants may be able to earn less if, for example, they are working in a shortage occupation or they have a relevant PhD).

C.1. Long-term EEA work migration baseline

38. To provide an understanding of the impact of policy choices on migration flows, it is important to be able to compare options on a like for like basis. In practice this means that there must be a common “baseline” of EEA migration against which to judge alternative outcomes.
39. Projecting migration flows is extremely challenging for a number of reasons:
- There are a wide range of potential drivers, which are themselves inherently uncertain. Migration flows are subject to short term “shocks” that by their nature are unpredictable.
 - There are significant limitations of the underlying data.
 - Using statistical techniques to project forward assumes that past behaviours and relationships between variables remain stable over time and will continue in the future. In reality, the world is ever changing, and behaviours will adapt and evolve over time in response to a changing environment.
40. The Migration Advisory Committee (MAC) migration forecasting report²¹ discusses these challenges in more detail. Any analysis of future migration flows in this paper and the Impact Assessment is therefore not a forecast and should be considered in this context and the high levels of uncertainty that this implies. Nonetheless, to provide an understanding of the impact of work migration policy choices on economic outcomes, it is important to be able to compare options with one another on a like for like basis. To assess the impact of changes in work migration policy, a long-term work-related EEA baseline is constructed to project flows into and out of the UK in the absence of any policy change.

Long-term EEA work baseline inflows modelling

41. The projection of EEA long-term work-related migration inflows is based on an econometric model that quantifies the relationship between inflows to the UK and demographic and economic factors. The model is based on factors that are cited as migration drivers in the existing literature, both for source countries and the UK, to

²¹https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/467405/Migration_Forecasting_report.pdf

capture both 'push' and 'pull' factors. This approach is consistent with previous empirical studies on migration²².

42. Demographic and economic factors used in the model include:

- Population aged 20-39 (as most migrants are in this age bracket);
- Relative unemployment rates; and
- Relative GDP per capita (using a purchasing-power-parity exchange rate)²³.

Data

43. The model uses International Passenger Survey (IPS) data for annual inflows from 19 EU countries²⁴ between 2004 and 2015²⁵.

44. IPS data is adjusted for other inflows such as asylum seekers and flows to and from Northern Ireland to estimate Long-Term International Migration (LTIM) which are used as the main measure of immigration, emigration and net migration across the whole population. As LTIM estimates are not provided by reason for migration and nationality, the preliminary adjusted IPS estimates are used in the regression analysis. IPS data provides reason for migrating based on a respondent's intentions, which may be different to the actual activity they undertake. As with all surveys, IPS is subject to sampling variability and since international migration estimates are based on a relatively small number of interviews some variables can only be disaggregated to a certain level before being subject to unacceptable margins of error, for example, migration from certain countries by single year.

45. It is important to note that the Office for National Statistics (ONS) have published preliminary adjustments to EU immigration figures²⁶. These adjustments have not been published by reason for migrating, as this work focuses on work-related inflows adjustments to overall levels have not been included within the analysis.

²² Ortega, F. and G. Peri (2009). The Causes and Effects of International Migration: Evidence from OECD Countries 1980-2005.

Forte, G. and Portes, J. (2017): Macroeconomic Determinants of International Migration to the UK, GLO Discussion Paper, No. 69

²³ In the IMF WEO online database, the implied PPP conversion rate is expressed as national currency per current international dollar. Projections for GDP in current prices (converted in PPS) are available at: <https://www.imf.org/external/pubs/ft/weo/2019/02/weodata/index.aspx>

²⁴ The EU countries not included in the sample are: Ireland, Luxembourg, Cyprus, Malta, Slovenia, Romania, Bulgaria and Croatia, reflecting data availability. Romania and Bulgaria are excluded as they were subject to migration controls for most of the sample. In addition, migration controls remained in place for Romania and Bulgaria until 2014. The projections assume that migration flows from all EU countries respond to the demographic and economic determinants according to the estimated regression coefficients.

²⁵ IPS estimates at country level are available from 2000 and this level of granularity was selected to capture the most recent migration trends, foregoing a longer but more aggregated time series (from 1991).

²⁶ <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/articles/understandingdifferentmigrationdatasources/augustprogressreport>

Model specification

46. The model specification uses traditional panel data modelling techniques to project baseline migration inflows. The functional form utilised is²⁷:

$$(1) y_{it} = \beta_0 + X'_{it}\beta + u_{it}, \text{ where } X' \text{ is a vector of economic variables for each country } i \text{ at time } t.$$

47. The final model yields²⁸:

$$(2) y_{it} = -1.0 - 1.9rel_gdp_{it-1} + 0.1unemp_diff_{it-1} + 0.1\Delta unemp_diff_{it} + e_{it}$$

Where:

- y_{it} is the natural logarithm of rate of EU inflows to the UK as a percentage of the population aged between 20 and 39 in country i in year t .
- $unemp_diff$ is the difference between country i and UK unemployment rate, lagged by one year;
- rel_gdp is the ratio of the natural logarithm of GDP between country i and the UK, lagged by one year;
- e is the regression error.

48. The key quantified relationships from this are:

- A 1% change in relative GDP between EU countries and UK results in a -1.9% change in the work-related inflows.
- A 1ppt change in the difference between unemployment rates results in a 10% change in work-related inflows.
- A 1ppt change in the growth rate of the difference between unemployment rates results in a 10% change in work-related inflows.
- A 1% increase in population aged 20-39 in the origin country results in a 1% increase in work-related inflows.

49. Having derived an estimate for the economic and demographic drivers of inflows from the EU, the estimates are then applied to forecast macroeconomic variables from the International Monetary Fund's (IMF) World Economic Outlook (WEO)²⁹ to project EU

²⁷ 'Random effects' rather than 'fixed effects' are used to cater for the persistence of differences between relative income which could appear as fixed effects.

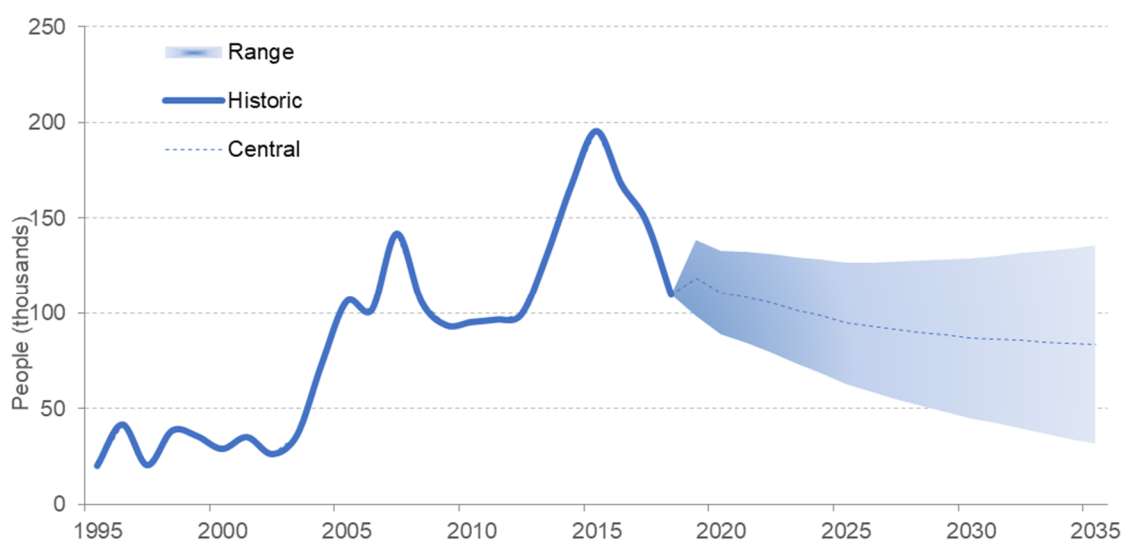
²⁸ Alternative specifications were included to test the effect of exchange rate and inequality measured by GINI coefficients but were not found to be significant in explaining long term migration flows. Note that exchange rates will affect relative incomes – which are included. Model gives an overall R squared of around 0.5. All coefficients are significant at $p < 0.01$.

²⁹ In the IMF WEO online database, the implied PPP conversion rate is expressed as national currency per current international dollar. Projections for GDP in current prices (converted in PPS) are available at: <https://www.imf.org/external/pubs/ft/weo/2019/02/weodata/index.aspx>

migration flows. This is done using October³⁰ projections of GDP and unemployment for UK and EU members.

50. After 2024, relative GDP per capita is assumed to remain at its projected 2024 level for the EU15. For EU8 and EU2 economies the speed of convergence with the UK is assumed to decelerate³¹. Population projections, beyond 2024, by country and age are sourced from United Nations Population Projections³².
51. The migration data used as a basis for the projection is the three-year average of the inflows between 2016 and 2018. A three-year period was chosen to avoid placing too much weight on single data points.
52. As stated above, there is a significant amount of uncertainty surrounding any estimates of future migration flows. The projections here should not be treated as a forecast – instead they reflect a plausible future profile consistent with a set of future long-run fundamentals, which can be used to compare policy changes against.
53. To illustrate the uncertainty around the central estimates, ranges have been estimated using the “average” (root mean squared) prediction errors for EU inflows from equation (2). The ranges are set at +/-20,000 respectively but are assumed to widen over time at a rate of +/- 2,000³³ each year to reflect the concept that uncertainty compounds over time (Figure 11).

Figure 11: Central range around projected long-term EEA work-related inflows³⁴



³⁰ <https://www.imf.org/external/pubs/ft/weo/2019/02/weodata/index.aspx>

³¹ EU8 and EU2 countries are assumed to continue to grow but at 80% of the previous year’s growth rate.

³² <https://population.un.org/wpp/Download/Standard/Population/>

³³ Based on +/- 10% of root mean squared error

³⁴ To estimate the final EEA projection estimated inflows from Norway and Switzerland are added to EU2, EU 8 and EU14 projections and inflows from Ireland are removed. Due to small volumes inflows from Norway, Switzerland and Ireland are not projected econometrically - instead volumes are assumed remain stable as a proportion of EU14 inflows over 2014-18.

54. Root mean squared error (RMSE) is a measure of how accurately the model predicted observed inflows and illustrates how far out the projection might be based only on how well the model predicted historic data points (using outturn data for economic and demographic drivers). This only captures one element of the uncertainty within the model. However, there are additional sources of uncertainty:
- Uncertainty in underlying outturn data;
 - Uncertainty in projected fundamentals (for example, projected unemployment rates and relative GDP); and
 - Uncertainty over time and stability of relationships between inflows and drivers of migration.

Long-term EEA work baseline outflows modelling

55. To capture net migrant workers in the economy, outflows are modelled as a function of previous inflows. Under free movement, outflows are linked to previous inflows by looking at the Office for National Statistics (ONS) estimates of long-term EEA emigrants by year of previous arrival³⁵. This provides data on year of arrival of outflows who previously came for work between 2012 and 2018. This allows the estimation of a 10-year profile for length of stay of outflows (averaged over 2016-18).
56. In the baseline, this 10-year outflow profile is applied to historic EEA inflows; these results are then compared to actual outflow data to infer the proportion of EEA inflows who eventually left the UK. Based on this, around 51% of long-term EEA inflows are estimated to leave the UK within 11 years. Given the data availability, all EU migrants who are estimated to leave the UK are assumed to do so within 11 years of arrival.
57. This approach assumes the behaviour of EEA migrants in terms of the proportion choosing to stay in the UK and length of time in the UK remains stable over time and is constant across occupations, regions and sectors.
58. Inflow and outflow modelling are combined to create a baseline for net long-term EEA work-related migration to the UK. This profile does not reflect a forecast and is an analytical tool to be able to consistently compare policy choices against one another and against a 'do-nothing' option. Actual net migration will differ from this analysis.

C.2. Long-term EEA work policy modelling

59. The migration policy model uses data on inflows and on the current population of EEA workers to estimate characteristics of future migration flows. It applies policy levers (such as skill and salary thresholds) to baseline inflows to estimate the impact of these policy levers on the level of inflows, and on net migration.

³⁵<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/adhocs/11021internationalpassengersurveyestimatesoflongterminternationalemigrationfromtheukofformerimmigrantsbycitizenshipmainreasonforpreviousimmigrationandyearofpreviousarrivalintheuk2012to2018>

60. A skill threshold is modelled using the required skill for each occupation set out in Immigration Rules Appendix J³⁶. In line with MAC recommendation 24³⁷, changes have been made to which occupations are regarded as RQF 3, affecting 14 different occupations. When a skill threshold policy lever is applied, each occupation either meets the criteria or does not, the response is binary. Future inflows of migrants in occupations that do not meet the required threshold are reduced to zero, while inflows to occupations that do meet the threshold are unaffected.
61. To model the impact of applying a specific salary threshold to enter the UK, the threshold is applied to the existing wage distribution of EEA migrants within each occupation, identifying the proportion within each occupation that would not meet the specified wage threshold. The model allows different salary thresholds to be set for the experienced (defined as those aged 26 or above) or new entrants (defined as those under 26).
62. Thresholds are set using published ASHE 2019³⁸ data on full time gross annual earnings of employees. Each occupation's threshold for experienced workers is set based on either the 25th percentile in that occupation (the occupation specific threshold) or £25,600 (the general threshold), whichever is greater³⁹. Thresholds for new entrants are set at £20,480 or a 30% reduction on the threshold for experienced workers, whichever is greater. Rather than use this approach for public sector occupations, the MAC instead recommend salary thresholds are based on national pay scales for 24 occupations that are primarily within the education and healthcare sectors – but a floor of £20,480 is still imposed. Full detail of salary thresholds for each occupations can be found in the Immigration Rules.
63. Inflows under the Skilled Worker route are assumed to follow the same length of stay and in-country application profile as that estimated for Tier 2 (General) migrants, therefore the outflow and settlement profiles described above (paragraph 16 to 25) are applied to future Skilled Worker inflows to estimate outflows under the new system.
64. The model only captures long-term migration flows, which are defined as those stating on entry to the UK that they intend to stay for 12 months or more. Short-term migrants (those intending to stay for less than 12 months) are not currently captured in this section of the analysis.

³⁶ <https://www.gov.uk/guidance/immigration-rules/immigration-rules-appendix-j-codes-of-practice-for-skilled-work>

³⁷ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/860669/PBS_and_Salary_Thresholds_Report_MAC.pdf

³⁸ <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/datasets/occupation4digitsoc2010ashtable14>

³⁹ For modelling purposes thresholds are rounded to the nearest £1,000.

C.3. Long-term EEA work – employment characteristics

65. The IPS data on inflows includes information on whether a migrant is a worker or dependant alongside their sex and age. IPS data does not include information on the employment characteristics of migrant flows; and so data on the EEA population resident in the UK (the stock) is used to help inform where EEA workers might decide to work when they arrive in the UK, and their salaries. Therefore, this analysis assumes the estimated occupation (four-digit SOC⁴⁰) and sector split for EEA migrants is based on the Annual Population Survey (APS) three-year pooled dataset (2016-18).
66. Population data for EEA workers (from the APS pooled dataset) is also used to estimate the regional distribution of EEA nationals across occupations. This is combined with regional differences in pay to estimate regional impacts of policy scenarios.
67. For simplicity, it is assumed that the occupational distribution across sectors and regions stays the same over time – apart from changes that occur as a result of applying salary or skills-based restrictions.
68. To analyse migration by sector, ONS 2-digit standard industrial classification of economic activities (SIC) codes are grouped into a bespoke list of 39 unique sectors. This provides more granularity than 1-digit SIC codes, whilst also maintaining a manageable number of different sectors to conduct analysis with. A full list of this grouping is provided in Annex A.

Age

69. IPS provides data on the age of migrant inflows; however, this is not disaggregated by occupation limiting the ability to model lower thresholds for new entrants.
70. Therefore, to estimate age by occupation and enable modelling of different thresholds for new entrants (identified as those under 26), APS data is used to inform age profiles by occupation. Due to sample sizes limitations this is done at a 1-digit occupation level.
71. To estimate the age profile of worker inflows, the analysis considers age on arrival⁴¹ of those who say their main reason for migrating was for work and who arrived in 2012 or later⁴² by current occupation.
72. To estimate the age profile of worker outflows, the total stock of EEA nationals who came for work and are currently active in the labour market is used.

⁴⁰ The standard occupational classification (SOC) is a common classification of occupational information in the UK. There are nine major SOC groups (1-digit SOC codes), 25 sub-major groups (2-digit SOC codes), 90 minor groups (3-digit SOC codes) and 369 unit groups (4-digit SOC codes).

⁴¹ Calculated by current age – years since arrival.

⁴² 2012 has been chosen to help identify relatively recent arrivals (to ensure that recent labour market trends etc. are captured) whilst trying to maximise samples sizes.

73. A similar approach is taken to estimate the age profile of working dependants, with age profiles weighted by the assumed occupation distribution for this group.

Wages

74. In the absence of reliable data on the wages of migrant flows, an estimate of the wage distribution of the existing stock of UK employees is used as a proxy for future flows. This may overstate the wages of new inflows, as EEA migrants are likely to progress through the wage distribution over time.
75. The wage distribution of the migrant stock is derived from Annual Survey of Hourly Earnings (ASHE) 2019⁴³ data on earnings within occupations at 4-digit SOC and the occupational profile of EEA migrants (derived from APS data).
76. The wage profile of EEA nationals is taken from ASHE 2019 data and is based on the wage profile of all UK employees. In order to model different thresholds for experienced and new entrant workers, ASHE data is filtered into earnings of those who are aged 26 or above and those under 26. The two earning distributions are weighted by the assumed proportion above and below 26 in each occupation to estimate a new baseline EEA wage distribution.
77. Due to sample size issues, the under 26 earnings data is used at the 3-digit occupation level when applying the new entrant salary threshold⁴⁴.
78. The proportion of EEA inflows under the age of 26 is only available at a 1-digit occupation level due to sample sizes. It is therefore assumed that each 4-digit occupation within a 1-digit grouping has the same proportion who are under 26 years old.
79. ASHE data does not differentiate between nationality, and therefore the modelling assumes that in each given four-digit occupation, workers of different nationalities have the same average wage; wage differentials are only driven by differences in the occupational distribution. This may not hold true as EEA workers are generally younger than UK workers, and hence likely to earn less. Previous analysis found some evidence of a wage penalty for EEA workers, for example, the MAC 2018 interim report on the impact of EEA nationals⁴⁵.
80. The salary of each occupation at four-digit level is assumed to be equal across all industry sectors. In practice, it is likely that (even at this granular occupational level) workers doing similar jobs in different sectors will be paid differently.

⁴³ Annual Survey of Hourly Earnings is a comprehensive source of earnings data in the UK using a representative sample of PAYE records of both full-time and part-time employees.

⁴⁴ The earnings distribution for a 3-digit occupation is applied to all the 4-digit occupations within that group.

⁴⁵ The recent interim report published the Migration Advisory Committee found a 5% wage gap between migrants from the New Member States and the UK-born – after controlling for industry, tenure and region. Non-EEA migrants were also found to earn 6% less than the UK-born whilst workers from EEA13 had no significant difference from pay of UK born workers.

81. ASHE data used includes both full-time and part-time employee earnings and part-time worker wages are not pro-rated. However, as under the existing system, it will be possible for the going rates for individual occupations to be pro-rated depending on the applicant's working pattern, as long as the total general salary threshold is met. The modelling assumes no pro-rating of salary thresholds and therefore it may overestimate the impacts on some part-time workers.
82. The wages of the current migrant stock and the salary threshold imposed on new flows are expressed in current prices. It also assumes the current stock of migrants is representative of the future migrant flows. This creates an implicit assumption that any imposed salary threshold will increase in line with any wage growth seen in the migrant stock.
83. Regional variance in pay for occupations have been included to estimate the regional impact of salary thresholds. It is assumed that there are two major regional differences in pay⁴⁶; 'London and the South East' and 'Other UK Regions'⁴⁷. From this, the proportion affected for each region is determined by a mix of the regional distribution of EEA nationals within occupations and regional pay differences for occupations.

Dependants

84. The number of EEA dependants is estimated based on the average ratio of dependants to workers observed in the IPS data between 2016 and 2018. The data indicates a dependant ratio of 0.16 (i.e. for every six workers there is one dependant)⁴⁸. This dependant ratio has been relatively stable over time; therefore, the projections assume this stays constant over time and across scenarios.
85. Dependants include working dependants, non-working dependants and children. To estimate the proportion of dependants that are children, IPS data on migrant flows is used. Using a three-year average between 2016 and 2018, it is estimated that children comprise 41% of all accompanying dependants.
86. To consider the total labour market impact, the analysis estimates the total number of working dependants using APS 2016-18 data on the stock of EEA nationals who say their main reason for migrating was to 'accompany or join someone' and arrived in 2012 or later – this implies that 57% of adult EEA dependants are active in the labour market.
87. This process leads to 34% of dependants who are assumed to be workers, 25% who are assumed to be inactive, with 41% deemed to be children. These dependant ratios are assumed to remain constant in the baseline as well as under a policy.

⁴⁶ ASHE 2019 suggests variation in average weekly earnings between London and the South East and Other UK Regions, but little pay variation between other UK regions.

⁴⁷ North East, North West, Yorkshire and the Humber, East Midlands, West Midlands, East, London, South East, South West, Northern Ireland, Scotland and Wales

⁴⁸ A small portion of the LTIM inflows are attributable to 'Others' for whom it is not clear how they would act in the UK. For the purposes of this modelling, they have been apportioned proportionally across workers and dependants.

88. A wage penalty has been applied for EEA working dependants. Data from the Labour Force Survey (LFS) April - June 2018 is used to find the difference in mean weekly earnings between EEA nationals who said their reason for migrating was for work and those who came to accompany/join. The income differential is then applied to estimated earnings of EEA working dependants.

Outflows distribution

89. It is assumed that outflows have a similar age distribution as the current stock of EEA nationals, even when a policy is applied to inflows. However, as outflows are a function of historic inflows, it is assumed that outflows have the same wage distribution as inflows. The requirement to meet the Skilled Worker route's salary thresholds will lead to an increase in the average earnings of EEA inflows (when compared with Freedom of Movement) and therefore this will lead to a corresponding increase in the average earnings of outflows over time.

C.4. Long-term EEA work – labour market adjustment

Approach and rationale

90. The analysis above makes no assumption for the potential behavioural responses of employers and market adjustment. However, the labour market is dynamic and, as with any change in environment, markets would be expected to adjust and reallocate resources to their most productive use. How employers choose to adjust and the relative ease with which this can be done will depend on the specific characteristics of an occupation (in particular whether it is governed predominately by market forces) as well as wider economic factors.
91. To complement the modelling of initial impacts on the labour market, bespoke analysis has been developed to assess which occupations might be more or less likely to adjust to changes in labour supply and provide further context as to the relative importance of impacts on the labour market. A set of three indicators was created, based on published data: the first considers the potential scope for adjustment, and is combined with two further indicators looking at the relative value of occupations (either economic or public value), and the reliance on EEA workers, to assess which occupations may face most difficulties, and where further consideration of policy impacts might be needed.

Potential scope for adjustment

92. This measure aims to capture the ability of occupations to adjust to unexpected changes in labour supply, either by substituting EEA labour for alternative sources of labour or capital for labour.
93. Occupations within sectors responsible for the provision of public services, such as medical services, education, social services, public administration and care are automatically assessed as occupations that might struggle to adjust by raising wages in order to substitute EEA labour for alternative sources of labour. This is because

wages within such sectors are driven primarily by government policy, and so they are unlikely to adjust automatically to market forces and any change would have implications for public finances.

94. Occupations that are governed by market forces might be able to more easily adapt to labour supply changes. However, certain factors may mean that they are not able to do so. The following indicators are used to assess these occupations' scope for adjustment:

- *Scope for automation* –This indicator is assumed to act as a proxy for the ability of labour to be substituted for capital within an occupation, since automation is the most transparent form of capital substitution. These are ONS collated figures⁴⁹ based upon research conducted by Frey and Osborne (2013)⁵⁰. The share of jobs in each occupation at risk of automation can provide an indication of the probability of automation of roles within an occupation⁵¹. Occupations with a low probability of automation may find it hard to adjust to labour supply reductions.
- *Real wage growth* –Real wage growth is included as an indicator of whether occupations are currently experiencing labour shortages, as an occupation struggling to recruit workers might increase wages to become more attractive to potential workers. A further reduction in labour supply could exacerbate these existing shortages.
- *Underemployment* – In occupations with underemployment, employers might respond to a reduced labour supply by increasing the hours worked by the current workforce employed. If a small proportion of workers within an occupation say they would like to work more hours, this implies that there is minimal underemployment in these occupations.
- *Hard to fill vacancies as a proportion of total employment* –Hard to fill vacancy rates are included to establish whether an occupation is experiencing a labour shortage. If hard to fill vacancies form a large proportion of total employment for an occupation, it could indicate that there are structural issues within these occupations which is making it hard for employers to hire workers. These issues could include a poor working culture, a shortage of skilled workers or if the employer is based in a rural occupation⁵².

⁴⁹<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/the-probabilityofautomationinengland/2011and2017>

⁵⁰ Carl Benedikt Frey and Michael A. Osborne, 'The Future of Employment: How Susceptible are Jobs to Computerisation?' *Oxford Martin Programme on Technology and Employment* (2013) pp. 1-77

⁵¹ Estimates for the probability of automation consider recent technological advances such as advanced robotics to assess the potential for job automation over some unspecific years, which are interpreted as medium to long run.

⁵² This builds on the MAC's methodology which uses total vacancies as a proportion of total employment to assess labour shortages. However, this measure does not establish the type of vacancies, such as hard to fill.

High wage and high contribution to public services

95. This indicator looks at the relative value of occupations affected, either economic or social value. Some areas of the labour market might provide greater economic value to the wider economy, and it is, therefore, important to understand whether labour supply changes are related to occupations that contribute disproportionately to the output of the economy.
96. Equally, some parts of the labour market may contribute less to economic output but provide greater social value in terms of positive non-market spill-overs to the wider economy or are vital to the delivery of key public services. For example; a healthy workforce, who are capable and able to work, is a positive spill-over provided by individuals who work in health-related industries.

Recent reliance on migrant labour

97. The extent to which affected occupations might need to adjust to labour market changes could depend on how reliant they have been on migrant labour. Occupations that have been heavily reliant on EEA migrant labour may have a more pressing need to adjust (for example, by increasing wages).

Data

98. The analysis uses several published data sources, summarised in Figure 12

Figure 12: Sources of data used for each indicator

Measure	Data source	Year
High wage	ASHE	2018
High contribution to public services	APS	2016-2018 (three-year pooled)
Recent reliance on migrant labour	APS	2014-2018
Potential scope for automation	ONS collated figures	2017
Real wage growth (inflation adjusted to 2017/2018)	ASHE	2015-2018
Underemployment	APS	2016-2018 (three-year pooled)
Hard to fill vacancies as a proportion of total employment	Employer Skills Survey (ESS) and APS	2017 ESS and 2016-2018 (three-year pooled APS)

Key assumptions

99. The analysis is carried out at the 4-digit SOC level. To ensure the analysis is as robust as possible, occupations with a sample size of less than 30 in the APS 2016-18 three-year pooled dataset are excluded. This list is then cross-referenced against other data sources to ensure all occupations with sample size issues⁵³ are excluded throughout our analysis.

⁵³ At the 4-digit SOC level, 257 out of 369 occupations are excluded.

100. Multiple four-digit occupations make up each three-digit SOC grouping. An occupation is classified as having a high contribution to public services (high public value) at the share of above 50%⁵⁴.

Key limitations

101. Scope for adjustment is measured based on four criteria to assess the ability of occupations to substitute labour for labour or capital for labour. This indicator can provide an indication of occupations potentially facing challenges based on our chosen criteria. However, this does not capture all the ways employers may adjust to policy changes.
102. The final selection of occupations is based on several key judgements around thresholds. For example, occupations need to be in the top 25% for more than one of the 'hard to adjust' criteria in order to be judged as potentially facing adjustment difficulties. There is a risk that vulnerable occupations which fall below this margin are excluded.
103. This analysis also relies on the assumption that outcomes observed in the past are representative of future trends, but in practice the dynamic nature of the labour market might mean that this is not the case. For example, expectation and the ability of occupations to adjust following a labour supply change will also depend on the wider economic environment.

Methodology

104. Using the indicators described above, occupations are grouped into broad categories.

High wage and high contribution to public services

105. There are two sub-components to this measure:
- *High wage* – Occupations are ranked based on their average wage, and those occupations in the top quartile of the rankings are indicated as areas of the labour market that might be of high relative importance to the wider economy.
 - *High contribution to public services* (public value) – Occupations which contribute highly to the delivery of public services are considered, based on their EEA workforce share in the following sectors: social work, care, public administration, education and medical services. Occupations can work across a number of different sectors. In order to consider the main occupations specific to these sectors, the analysis considers the share of EEA workers in each occupation within these five sectors. Occupations with a public sector workforce share of above 50%

⁵⁴ Where sectors responsible for the provision of public services are: Care, Education, Medical services, Social work and Public administration and defence.

in these sectors are included as occupations that have a high contribution to public services.

Recent reliance on EEA workers

106. This indicator considers annual average employment growth in each occupation between 2014 and 2018. Three sub-components are looked at:
- *Absolute EEA employment growth* – Occupations with the highest absolute employment growth are assessed.
 - *EEA employment growth in growing occupations* – Occupations where a high proportion of total employment growth was driven by growth in EEA nationals are considered.
 - *EEA employment growth in shrinking occupations* – Occupations which saw growth in EEA employment, whilst shrinking overall (either due to declining employment for non-EEA and/or UK nationals) are considered.
107. Occupations are ranked for each of the sub-components above. Those occupations in the top quartile of rankings for at least one sub-component are defined as ‘highly reliant on EEA national labour’ occupations.

Potential scope for adjustment

108. This measure assesses occupations against four sub-components. A high ranking indicates occupations may face difficulties under a specific indicator:
- *Scope for automation* – Occupations are ranked according to their probability of automation. Those with a low probability of automation rank highly; This suggests an occupations inability to substitute labour for capital as a result of a labour shortage.
 - *Real wage growth* – The analysis ranks occupations based on their real wage growth, adjusting wages to account for inflation. Occupations with positive real wage growth rank highly. Occupations already experiencing real wage growth suggests that they are already experiencing labour shortages; with wages rising to increase the relative attractiveness of working in an occupation. Shortages which could lead to adjustment difficulties.
 - *Underemployment* – The analysis ranks occupations based on the proportion of employees that would be willing to work longer hours. Occupations with minimal underemployment rank highly. Occupations with high underemployment could utilise their current employees working more hours to overcome adjustment difficulties.
 - *Hard to fill vacancies as a proportion of total employment* – The analysis ranks occupations based on hard to fill vacancy rates. Occupations that currently have a

large hard to fill vacancy rate may face adjustment difficulties through and hence rank highly.

109. When making a final judgement on the likelihood of occupations facing adjustment difficulties, the analysis ranks occupations for each sub-component. Occupations that are ranked in the top quartile for at least two of the sub-components are indicated as occupations that are likely to face adjustment difficulties.
110. Occupations within sectors responsible for the provision of public services⁵⁵, such as medical services, education, social services, public admin and care are automatically included within this indicator.

Results⁵⁶

111. **High wage:** The analysis suggests that there are 29 high-skilled and medium-skilled occupations and 1 lower-skilled occupation, which are highly affected by the policy, and which might be of economic importance – this is measured by an average wage of at least £30,000.
112. **High contribution to public services:** The analysis indicates that there are 15 high-skilled and medium-skilled occupations and 1 lower-skilled occupation that contribute extensively to the delivery of key public services. These occupations are predominately in Health, Education and Welfare. For these chosen occupations, within their 3-digit counterpart, at least 53% of the EEA workforce are employed in sectors that deliver public services.
113. **Recent reliance on EEA migrant labour:** There are eight high-skilled and medium-skilled and 15 lower-skilled occupations that were identified as being reliant on EEA nationals for employment growth in recent years. Those that rank highly for absolute EEA employment growth had growth of at least 2,600 EEA workers across 2014 to 2018 and 1,300 in shrinking occupations for the same period. Likewise, absolute EEA employment growth across 2014 to 2018 accounted for at least 60% of total employment growth in occupations selected based on their proportional EEA employment growth.
114. **Potential difficulty of adjustment:** The analysis suggests that 31 high-skilled and medium-skilled and ten lower-skilled occupations could face adjustment difficulties. Those occupations that ranked in the top quartile for scope of automation had a probability of automation below 44%. Similarly, for occupations highly ranked based on underemployment, fewer than 5% of employees indicated that they would work longer hours. Hard to fill vacancy rates were at least 2% for occupations in the top quartile of this measure. Moreover, occupations highly ranked for real wage growth experienced at least 3% growth from 2014 to 2018. Occupations which rank in the top quartile for one or more of the outlined measures are considered to potentially face adjustment difficulties. As well as this, occupations that the analysis indicates as

⁵⁵ Whose combined public sector workforce share is above 50% in these sectors (those occupations identified being of “public value” in the high wage/high contribution to public services).

⁵⁶ Results are summarised in Figures 10 and 11 in the main impact assessment.

contributing highly to public services are also automatically assumed to potentially face labour market adjustment difficulties – this is because wages in these occupations are not governed by market forces.

C.5. Long-term EEA work – employer behavioural response analysis (RQF 3+)

Approach and rationale

115. The Skilled Worker route is likely to reduce the inflows of EEA long-term workers into the UK labour market due to the eligibility requirements (skill and salary thresholds), as described in the IA. This will have direct effects on the availability of EEA labour to employers operating within the UK compared to the labour market under freedom of movement.
116. Due to the dynamic nature of the labour market, employers are expected to respond to the reduction in EEA workers inflows in order to continue to operate at an optimal level of production. This response, however, will incur costs
117. The process of adjustment can happen via a multitude of methods (as discussed in the IA, paragraph 157), with an employer's ability to react in each way being largely specific to the firm and to the economic climate. The employer behavioural response analysis presented within the IA does not attempt to predict the future behavioural response of employers. Instead, it explores a purely illustrative scenario to illustrate the *potential* costs incurred by employers (and impact on Skilled Worker route inflows) if employer chose to raise employment costs by a given percentage.
118. This scenario focuses on baseline inflows who meet the skill requirements but do not earn enough to meet salary thresholds, therefore are ineligible for the Skilled Worker route.

Key limitations

119. The scenario only focuses on one type of employer response and does not consider other options open to employers such as employing resident labour, which may be more viable. This analysis does not attempt to predict how employers will choose to adjust or quantify all types of adjustment the analysis, it does not give any indication of how likely these costs are to be incurred as a result of the policy.
120. This approach assumes the same response for all employers, which is unlikely to be true as responses are highly firm-specific and dependent on a range of factors including firm characteristics, such as the firm's size and the industry it operates within. Some firms may have greater ability to increase wages making this mechanism of adjustment more viable, for example if the firm has large profit margins, which would play a part in the decision to respond in this way.
121. The assumption that employers engage in this specific behavioural response is more relevant in a tight labour market where employment rates are high and options for

employers to hire resident labour (instead of migrant labour) are limited. However, this becomes less likely in the context of high unemployment rates and Covid-19.

122. The benefits to employers of continuing to employ non-UK labour (at a higher price) are assumed to more than offset any costs from wage raises, as otherwise employers would not choose to employ labour. This will be more likely where employers can vary wages for individuals, but less realistic if higher wages feed into wage setting across an organisation.

Methodology

123. The analysis considers baseline inflows who meet the skills threshold and not the salary threshold, as only employers of skilled migrants can feasibly respond to the migration policy through increasing salaries.
124. To calculate the full cost associated with raising wages to meet thresholds and employing EEA workers under the future system, multiple components are considered:
- Firstly, there is the distance from the baseline salary to the salary threshold, in order to meet eligibility criteria for the Skilled Worker route. This is calculated using the baseline earnings distribution for each occupation described in section C.2 above. The distance between the baseline earnings and the salary threshold is the wage cost required.
 - As a result of the increase in salary to the threshold level, there are greater non-wage costs faced by employers such as employer NICs and pension contributions. The increase in these contributions are calculated by comparing the baseline salary contributions to the salary threshold contribution, using 20/21 tax rates and minimum employer pension contribution rates⁵⁷.
 - Finally, there are additional fixed costs involved with sponsoring a migrant in the future system – these are set out in paragraph 219 of the main IA with references to additional paragraphs in the main IA for further details:
 - A cost of £70 per migrant for sponsor licence costs is applied. A familiarisation cost of £12 per migrant is also applied.
 - An administrative cost of £1018 is applied for all employers employing a migrant on the Skilled Worker route.
 - An average ISC of around £2,500 per migrant is applied.
125. These three types of costs are accumulated and used to calculate the increase in employer costs required to meet salary thresholds. The increase in employer cost is calculated as a percentage change using the baseline cost of employing an EEA long-term worker (baseline salary with non-wage costs) and the employer costs under the Skilled Worker route (threshold level salary, non-wage costs, fees and indirect sponsorship costs).

⁵⁷<https://www.thepensionsregulator.gov.uk/en/employers/managing-a-scheme/contributions-and-funding#d9863d32d08e432789c921bed8428527>.

126. The main body of the IA presents the impacts on results of two scenarios, firstly if it is assumed that employers were willing to increase employment costs by up to 10 per cent and secondly by up to 20 per cent.
127. For each of these scenarios any inflows identified where the increase in employment costs required is within the chosen level (up to 10 per cent or 20 per cent) are assumed to experience a raise in wages and become eligible for the Skilled Worker route. Both scenarios result in a greater number of EEA worker inflows eligible than in the main analysis. Whilst there are employer costs due to this increase, there are also benefits in terms of greater fiscal contributions from increased inflows with higher earnings – this therefore reduces the fiscal costs of the reduction in EEA long-term workers and feeds into the NPSV.
128. The increase in inflow of EEA skilled workers under this scenario also instigates changes to the NPSV in terms of benefits, as fee income to the Government increases (revenue raised from visa fees and IHS). Likewise, overall costs of the policy increase, for example Home Office implementation and processing costs, third party processing fees, and costs to employers (admin burden and familiarisation) all increase due to a higher volume of migrants entering the UK through the Skilled Worker route compared to under the central scenario with no employer behavioural response.

C.6. Long-term EEA work – employer behavioural response analysis (Below RQF 3)

129. Employers of long-term EEA work inflows below RQF 3 may also face potential response to the change in access to this labour. An additional sensitivity is run and included in the IA (paragraphs 223 to 233), but the wide array of uncertainties as set out in that section of the main IA means this analysis is limited in the insight it provides.
130. The approach, limitations, data used and methodology are set out in the relevant section of the IA and is not repeated here.

D. Elasticity Assumptions

131. The following table sets out the elasticities used to analyse the impact of the policy changes under the Skilled Worker route. Table D.1 sets out the academic papers from which these elasticities are taken. Elasticities used for dependent applications are not included in Table D.1 as these were not derived from academic literature; rather, they were derived from Home Office analysis on the likely response by dependants from changes to dependant fees. Such responses were deemed to yield a best case and central elasticity of -0.3, and a worst-case value of -0.6.
132. The term ‘elasticity’ measures the responsiveness of demand for a product after a change in a product’s own price. The elasticity assumption used here should be interpreted as the proportional decrease in visa applications (the demand) for a 1 per cent decrease in expected income over the total duration of the visa due to the increase in visa fee (the price). For example, if the increase in visa fee represents a 2 per cent decrease in total expected income and elasticity is assumed to be -0.5, then volumes would reduce by -0.5×2 per cent = -1 per cent.

Table D.1: Empirical studies of the wage elasticity of labour supply

Source	Estimate of wage elasticity of labour supply	Measure
Bargain, O., Orsini, K. & Peichl, A. (2012) <i>Comparing Labor Supply Elasticities in Europe and the US: New Results (December 2012)</i> . SOEP paper No. 525.	Men: between 0 and 0.4 Women: between 0.1 and 0.6	Elasticity of labour supply based on total hours in response to changes in tax-benefit policies. Uses data from Europe and the US from 1998 to 2005.
Blundell, R., Bozio, A. & Laroque, G. (2011) <i>Extensive and intensive margins of labour supply: working hours in the US, UK and France</i> , IFS Working Papers W11/01, Institute for Fiscal Studies.	Between 0.3 and 0.44	Aggregate elasticity estimate for total hours of the 30 to 54 age group for UK men and women from 1968 to 2008.
Evers, M., Mooij, R. & Vuuren, D. (2008) ‘ The Wage Elasticity of Labour Supply: A Synthesis of Empirical Estimates ’, <i>De Economist</i> , Springer, vol. 156(1), pp. 25-43.	Men: 0.07 Women: 0.43 (0.34 excluding outliers)	Mean estimates for a sample of 209 uncompensated labour supply elasticities in different developed countries. Average year of data sample in each study ranges from 1966 to 2000.

<p>Jäntti, M., Pirttilä, J. & Selin, H. (2015) 'Estimating labour supply elasticities based on cross-country micro data: A bridge between micro and macro estimates?' <i>Journal of Public Economics</i>, vol. 127, pp. 87-99.</p>	<p>Between 0.23 and 0.64</p>	<p>Range is based on point estimates of average 'micro' and 'macro' elasticity estimates. Uses data from 13 countries, including from OECD. Data ranges from early 1970s to 2010s.</p>
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Source: Home Office internal analysis, 2020

E. Fiscal impact of migration

E.1. Overview

133. A static analysis of the 2018/19 fiscal year is used to estimate tax revenue and government spending attributable to migrants of a given age, economic status and earned income. This analysis is applied to changes in future net migration flows (by wage, age and economic activity) to estimate the order of magnitude of the impact on the public finances.
134. This analysis is not a projection of the future state of the economy; it is based on the latest data on fiscal expenditure and tax rates which captures the UK economy in its current state, adjusting for productivity growth and inflation, allowing specific impacts of changes to migration to be explored, holding all other factors constant.
135. In the literature there are a number of different approaches to calculating the effect of policy changes on fiscal balances. The central methodology used here represents a 'marginal' approach to measuring the impact of migration and therefore makes a distinction between spend and revenue that is unlikely to vary according to the number of individuals moving to the UK. This assumption is tested within the sensitivity analysis sections below.
136. The modelling framework considers initial impacts of specific policy changes. It does not consider dynamic responses of the economy and behavioural responses of individual and firms. As such, fiscal impacts from a change in migration are presented over the short-term, defined as the first ten years of the policy (2021 to 2030). The approach considers the cumulative change in migrant volumes over this period.
137. No assumption is made for how migrants age over this period.

E.2. Fiscal spend

138. The analysis uses a top down approach to apportion total expenditure on public services at the individual level. This results in estimated unit costs for different types of public expenditure, by migrant age group and economic activity.

Key data sources

139. Data on expenditure of public services is obtained from Public Expenditure Statistical Analysis (PESA) published by HM Treasury, which provides data on public sector expenditure broken down by functions. The analysis is based on data for 2018/19⁵⁸.
140. Data on migrant population characteristics is obtained from the APS produced by the ONS. APS data for 2018/19 is used to derive population characteristics such as

⁵⁸<https://www.gov.uk/government/statistics/public-expenditure-statistical-analyses-2019>

volumes of existing residents by nationality and age distribution. When using estimates of total UK population, the analysis uses ONS 2018⁵⁹ data, which is considered more accurate than the APS.

141. Data on social protection expenditure is obtained from the Family Resources Survey⁶⁰ (FRS) for 2018/19. FRS data for 2018/19 is used to obtain the average benefit received for EEA nationals of working age in the UK.
142. Figure 13 describes how these data are apportioned on a per capita basis. Unit costs are based on 2018/19 prices these have been inflated to 2020/21 prices and adjusted using OBR long-term projections real labour productivity growth to account for future economic growth⁶¹.

Figure 13 - Methodology for apportioning fiscal spend components across different nationalities

Major spend components	Marginal approach
Public goods (i.e. R&D, Defence) Debt interest	Under a marginal approach this spend is only allocated to the resident population. The rationale is that the marginal costs of providing these services to an additional migrant is zero/negligible.
Housing development	Allocated on a per capita basis
Police services	Allocated on a per capita basis
Health	Office of Budget Responsibility (OBR) ⁶² estimates on health spending by age are applied. On top of this, an adjustment is made for lower usage of the healthcare system of non-UK nationals than the UK population: <ul style="list-style-type: none"> • A further reduction of 62 per cent has been applied to the healthcare unit costs of non-EEA nationals, to reflect lower usage of the system compared to UK population as per Department of Health & Social Care internal analysis⁶³, • A reduction of around 16 per cent is applied to the healthcare spend of EEA

⁵⁹ <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration>

⁶⁰ FRS is self-reported, this means it is likely to under-report benefit receipt figures as some respondents do not know or do not have the necessary information to answer the specific questions about individual benefits which makes it difficult to collate accurate information; more information on this, and the FRS more generally, is available at <https://www.gov.uk/government/statistics/family-resources-survey-financial-year-201617>. For estimates of benefit expenditure and caseload for EEA nationals, publications from HMRC or DWP should be used; <https://www.gov.uk/government/statistics/income-tax-nics-tax-credits-and-child-benefit-statistics-for-eea-nationals-2015-to-2016> and <https://www.gov.uk/government/statistics/nationality-at-point-of-national-insurance-number-registration-of-dwp-working-age-benefit-recipients-data-to-november-2017> respectively.

⁶¹ <https://obr.uk/efo/economic-fiscal-outlook-march-2019/>

⁶² <http://budgetresponsibility.org.uk/fsr/fiscal-sustainability-analytical-papers-july-2016/>

⁶³ Department of Health & Social Care estimate of the use of service is based on data on use of primary and secondary care by IHS payers.

	nationals, as per Department of Health and Social Care published analysis of non-UK primary healthcare expenditure ⁶⁴ .
Pre-primary education	Allocated evenly to 0-4 year-olds
Primary and secondary education	Allocated evenly to 5-17 year-olds
Tertiary education	Allocated evenly to students in higher education, based on Student Loans Company data (excluding international non-EEA students)
Social protection: benefits	Estimates per head costs based on FRS data to reflect the average benefit received for EEA nationals of working age, dependent on earnings. Non-EEA inflows are not assumed to be eligible for benefits
Social protection: personal social services	Social protection and social exclusion allocated on a per capita basis. Family and child social services allocated using APS data on share of family units and age of head of household. Old age social services apportioned equally to 65 and above population.

E.3. Fiscal revenue

143. The analysis uses a bottom-up approach to calculate the expected contribution to direct and indirect taxes from migrants, based on individuals' characteristics, and data on their earnings and spending patterns.

Key data sources

144. Total revenue is taken from the OBR's Economic and Fiscal Outlook⁶⁵. The analysis also considers information on indirect taxes by nationality in the Living Cost and Food survey data between 2016/17, 2017/18, and 2018/19⁶⁶ and council tax in ONS data on the effects of taxes and benefits on household income⁶⁷ 2018/19.

Figure 14 : Methodology for apportioning fiscal revenue components across different nationalities

Major revenue components	Marginal approach
Income Tax	Tax rates for 2020/21 are applied to estimated taxable income

⁶⁴Health Survey for England data (2015) <http://nesstar.ukdataservice.ac.uk/webview/>. This reduction implicitly assumes that the primary healthcare usage of non-UK nationals is equivalent to the total healthcare spend of EEA total healthcare usage. This is potentially an overestimate of healthcare expenditure of EEA nationals as it does not account for differences in secondary healthcare expenditure.

⁶⁵ <https://obr.uk/efo/economic-fiscal-outlook-march-2019/>

⁶⁶<https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/expenditure/adhocs/11940householdexpenditureanddisposableincomebydisposableincomedecilegroupbyoriginofhouseholdreferenceper sonukfinancialyearending2017tofinancialyearending2019>

⁶⁷<https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/data sets/theeffectsoftaxesandbenefitsonhouseholdincomefinancialyearending2014>

National insurance contributions (NICs)	NICs rates for 2020/21 are applied to estimated earnings
Indirect taxes (include VAT, duties on specific products such as alcohol and tobacco, licences such as television and intermediate taxes)	Indirect tax rates are calculated depending on earning deciles. Data from the Living Cost and Food survey ⁶⁸ between 16/17, 17/18 and 18/19 is used to estimate the effective tax rate (indirect tax divided by disposable income) by household income decile for EEA and non-EEA nationals. This captures spending patterns (savings/remittances) for different nationality groups
Corporation taxes Business rates	Profits and the capital stock change with the size of the workforce. In a marginal approach the assumption is made that any changes in migrant workers will have an impact of company taxes and business rates. This assumes that contributions to Company tax and Business rates are ultimately driven by consumption in the same way as indirect taxes, and the per capita allocation is based on an individual's contribution to indirect taxes.
Council tax	Allocated depending on earning deciles, based ONS ⁶⁹ estimates of council tax paid per household in each income decile. An adjustment is made for those receiving a council tax reduction and the number of economically active individuals in each household.
Capital gains tax Inheritance tax Gross operating surplus, interest and dividends All other taxes/income streams	Under a marginal approach this revenue is allocated only to the resident population. The rationale is that a newly arrived migrant will have little or no impact on these revenue streams.

E.4. Long-term EEA work migration fiscal modelling

145. This section describes how the static analysis above is applied in the context of future migration modelling.

Fiscal spend

146. The spend unit costs described above are applied to the estimated change in net EEA migration (by age and economic activity) to estimate the saving in public expenditure.

⁶⁸<https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/expenditure/adhocs/008529householdexpenditureanddisposableincomebydisposableincomedecilegroupbyoriginofhouseholdreferencepersonukfinancialyearending2015tofinancialyearending2017>

⁶⁹

<https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/datasets/theeffectsoftaxesandbenefitsonhouseholdincomefinancialyearending2014>

Fiscal revenue

147. The long-term EEA worker migration model described in section B estimates the earnings of EEA migrants under the baseline and policy scenarios. Revenue estimates described in Figure 14 are applied to modelled future earnings and adjusted for real labour productivity growth overtime to account for future economic growth⁷⁰. Indirect tax revenue from inactive dependants is not estimated as they are assumed to be supported by their working partner. Taxes on consumption by inactive dependant migrants is therefore assumed to be captured within indirect tax paid by workers.

E.5. Long-term non-EEA work migration fiscal modelling

148. The same fiscal methodology described above is used when assessing the fiscal impact of non-EEA nationals.

Fiscal spend

149. Unit costs are applied to non-EEA migrants based on migrant characteristics such as age and economic activity. These assumptions are described in Section C.
150. Unlike for EEA nationals, non-EEA nationals are assumed to have no access to welfare payments (in the baseline as well as policy scenarios) in their first five years in the country.

Fiscal revenue

151. The non-EEA skilled worker modelling estimates the baseline earnings of non-EEA migrants and the change under a given policy scenario. Revenue estimates described in Figure 14 are applied to modelled future earnings and adjusted for real labour productivity growth overtime to account for future economic growth⁷¹. Indirect tax revenue from inactive dependants is not estimated as they are assumed to be unable to access public funds and so do not receive their own income.

⁷⁰ <https://obr.uk/efo/economic-fiscal-outlook-march-2019/>

⁷¹ <https://obr.uk/efo/economic-fiscal-outlook-march-2019/>

F. Annex A: Grouping 2-digit SIC sectors into a bespoke list of sectors for migration analysis.

2-digit SIC code	Migration analysis sector
01 Crop, animal production, hunting	Agriculture
02 Forestry and logging	Agriculture
03 Fishing and aquaculture	Agriculture
05 Mining of coal and lignite	Extraction
06 Extraction crude petroleum and gas	Extraction
07 Mining of metal ores	Extraction
08 Other mining and quarrying	Extraction
09 Mining support service activities	Extraction
10 Manufacture of food products	Food and Drink Manufacturing
11 Manufacture of beverages	Food and Drink Manufacturing
12 Manufacture of tobacco products	Food and Drink Manufacturing
13 Manufacture of textiles	Textiles and clothing
14 Manufacture of wearing apparel	Textiles and clothing
15 Manufacture of leather and related	Textiles and clothing
16 Manufacture wood and wood products	Other Manufacturing
17 Manufacture paper & paper products	Other Manufacturing
18 Printing and recorded media	Other Manufacturing
19 Manufacture of coke & refined petrol	Extraction
20 Manufacture of chemicals	Pharmaceuticals and Chemicals
21 Manufacture of pharmaceuticals	Pharmaceuticals and Chemicals
22 Manufacture rubber plastic products	Steel and other metals and commodities
23 Manuf non-metallic mineral products	Steel and other metals and commodities
24 Manufacture of basic metals	Steel and other metals and commodities
25 Manuf fab metal prods, ex machinery	Steel and other metals and commodities
26 Manuf computr, electronic & optical	Electronics
27 Manufacture of electrical equipment	Electronics
28 Manuf of machinery n.e.c.	Parts and machinery
29 Manuf vehicles and trailers	Automotive and Transport
30 Manufacture of other transport	Automotive and Transport
31 Manufacture of furniture	Other Manufacturing
32 Other manufacturing	Other Manufacturing
33 Repair and installation of machinery	Repair and Installation
35 Electricity, gas and air cond supply	Utilities
36 Water collectn, treatment & supply	Environmental services
37 Sewerage	Environmental services
38 Waste collectn, treatment, disposal	Environmental services
39 Remediation & other waste managmnt	Environmental services
41 Construction of buildings	Construction
42 Civil engineering	Construction
43 Specialised construction activities	Construction
45 Wholesale retail trade repair vehicles	Motor trades
46 Wholesale trade, except vehicles	Wholesale (excl. motor vehicles)
47 Retail trade, except vehicles	Retail
49 Land transport inc. via pipelines	Land transport
50 Water transport	Air and Water Transport
51 Air transport	Air and Water Transport

52 Warehousing & support for transport	Warehousing and support for transport
53 Postal and courier activities	Post
55 Accommodation	Hospitality
56 Food and beverage service activities	Hospitality
58 Publishing activities	Creative Industries and Broadcasting
59 Film, video, television sound record	Creative Industries and Broadcasting
60 Programming and broadcasting	Creative Industries and Broadcasting
61 Telecommunications	Utilities
62 Computer programming and consultancy	Computer services
63 Information service activities	Creative Industries and Broadcasting
64 Financial ex insurance and pension	Banking, market infrastructure
65 Insurance, reinsurance and pension	Ancillary financial services and insurance
66 Auxiliary to financial and insurance	Ancillary financial services and insurance
68 Real estate activities	Real Estate
69 Legal and accounting activities	Professional Business Services
70 Head offices; management consultancy	Professional Business Services
71 Architectural and engineering	Professional Technical Services
72 Scientific research and development	Research and Development
73 Advertising and market research	Professional Business Services
74 Other prof, scientific and technical	Professional Technical Services
75 Veterinary activities	Professional Technical Services
77 Rental and leasing activities	Other services
78 Employment activities	Other services
79 Travel, tour operator, reservation	Other services
80 Security & investigation activities	Other services
81 Services to buildings and landscape	Building Services
82 Office admin, support and other	Other services
84 Public admin, defence, social sec	Public administration and defence
85 Education	Education
86 Human health activities	Medical services
87 Residential care activities	Care
88 Social work without accommodation	Social work
90 Creative, arts and entertainment	Creative Industries and Broadcasting
91 Libraries, archives, museums	Recreational Services
92 Gambling and betting activities	Recreational Services
93 Sports, amusement, recreation	Recreational Services
94 Activities membership organisations	Other services
95 Repair of computers and other goods	Repair and Installation
96 Other personal service activities	Personal and domestic services
97 Domestic personnel	Personal and domestic services
98 Undifferentiated goods	Other services
99 Extraterritorial organisations	Other services

G. Annex B: Visa fees and Unit Costs

Table B1.1 – Out of country fee level and unit cost by visa product, £.

OUT OF COUNTRY - Visa Products	2020/21 Unit Cost	2020/21 Fee
Global Talent – main applicants	184	152
Global Talent – dependants	184	608
Global Talent Endorsement for LTR	184	456
Skilled Work: Up to 3 years – main applicant	127	610
Skilled Work: Up to 3 years – dependants	127	610
Skilled Work: Over 3 years – main applicant	127	1220
Skilled Work: Over 3 years – dependants	127	1220
Skilled Work-Shortage Occupation: Up to 3 years – main applicant	127	464
Skilled Work-Shortage Occupation: Up to 3 years – dependants	127	464
Skilled Work-Shortage Occupation: Over 3 years – main applicant	127	928
Skilled Work-Shortage Occupation: Over 3 years – dependants	127	928

Skilled Work: Minister of Religion & Sportspeople – main applicant	127	610
Skilled Work: Minister of Religion & Sportspeople – dependants	127	610
Health and Care Visa Up to 3 years- Main applicant	127	232
Health and Care Visa Up to 3 years- Dependant	127	232
Health and Care Visa Over 3 years- Main applicant	127	464
Health and Care Visa Over 3 years- Dependant	127	464

Source: Home Office
internal analysis, 2020

Table B1.2 – In Country fee level and unit cost by visa product, £.

IN COUNTRY - Visa Products	2020/21 Unit Cost	2020/21 Fee
Global Talent – main applicants	126	152
Global Talent – dependants	126	608
Skilled Work: Up to 3 years – main applicant	317	704
Skilled Work: Up to 3 years – dependants	317	704
Skilled Work: Over 3 years – main applicant	317	1408

Skilled Work: Over 3 years – dependants	317	1408
Skilled Work-Shortage Occupation: Up to 3 years – main applicant	317	464
Skilled Work-Shortage Occupation: Up to 3 years – dependants	317	464
Skilled Work-Shortage Occupation: Over 3 years – main applicant	317	928
Skilled Work-Shortage Occupation: Over 3 years – dependants	317	928
Skilled Work: Minister of Religion & Sportspeople – main applicant	317	704
Skilled Work: Minister of Religion & Sportspeople – dependants	317	704
Health and Care Visa Up to 3 years- Main applicant	317	232
Health and Care Visa Up to 3 years- Dependant	317	232
Health and Care Visa Over 3 years- Main applicant	317	464
Health and Care Visa Over 3 years- Dependant	317	464

Source: Home Office internal analysis, 2020

