



Response to the CAA's Initial Proposals on Staff Costs at NR23

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Executive Summary

NERA Economic Consulting (NERA) has been commissioned by NATS (En Route) plc (NERL) to review and respond to the initial proposals from the Civil Aviation Authority (the CAA) on the pensionable pay component of NERL's staff costs for the NR23 price control. This report sets out our assessment of the CAA's initial proposals and the benchmarking analysis of NERL staff pay provided by the CAA's consultants, Steer, to support those proposals. We show that Steer's benchmarking analysis does not provide robust support for the CAA's proposals. The proposals in NERL's Business Plan (BP) are more consistent with the available evidence from both Steer's analysis and analysis we had previously conducted for NERL.

The CAA has Proposed Lower Staff Costs than NERL's Business Plan

NERL is a provider of UK air traffic control services and is regulated by the CAA for five-year price control periods. The next price control period, NR23, will cover calendar years 2023-2027.

Staff costs from pensionable pay make up a significant portion of NERL's total costs. Around 90 per cent¹ of NERL's staff costs come from pensionable pay for negotiated grades (ATCO, TATC, ATSA, ATCE, STAR and MSG staff groups).² There is a limited labour market outside of NERL for air traffic controllers and other staff within these negotiated grades, so additional analysis is required to determine whether NERL pay for these grades is "efficient" (i.e. reflective of market pay for comparable staff).

In its BP for NR23, NERL outlined its expectations for staff costs over the control period.³ the CAA has proposed adjustments to the staff costs in NERL's BP and in particular has proposed reductions to the allowed costs for pensionable pay growth.

The CAA has put forward two cases for staff costs: a "base case" that it currently proposes to adopt, and a "low case" that it has left open to further consideration. The precise linkage between the CAA's "base case" and "low case" and Steer's recommendations is unclear. However, the CAA's base case roughly approximates Steer's "bottom-up" analysis while the CAA's low case roughly approximates Steer's "top-down" analysis.⁴ In particular:

- **Base case:** the CAA's "base case" and Steer's "bottom-up" analysis limit real-terms pay growth for NERL staff over NR23 to align with expected future real-terms pay growth in the wider economy.
- **Low case:** the CAA's "low case" and Steer's "top-down" approach imposes real-terms pay reductions over NR23 to bring NERL pay in line with supposed market benchmarks. Steer derives the supposed market benchmarks from a simplistic comparison of NERL

¹ Data received from NATS. Value refers to staff costs in 2022.

² For a more detailed description of each staff group, see: Steer (September 2022), NR23 price control review: support on cost assessment for NR23 period and reconciliation review (2020-2022), p. 95-96

³ NATS (7 February 2022), NATS proposed business plan for upcoming price control (NR23).

⁴ Steer (September 2022), NR23 price control review: support on cost assessment for NR23 period and reconciliation review (2020-2022).

staff annual pay against the annual pay of UK comparator industries and occupations. Steer uses both average historical pay growth and the 2019 average pay level.

The CAA's Proposals Assume that NERL Staff are Paid Above Market Rates, but the Evidence does not Support This

Both of the CAA's cases assume that NERL staff are paid above market rates. In particular, the CAA's low case is based on adjustments that the CAA and Steer suggest are required to bring NERL pay in line with supposed market benchmarks.

Steer's evidence, correctly interpreted, as well as our own benchmarking analysis shows that staff wages at NERL are already in line with market benchmarks. Therefore, the CAA should place no weight on its low case.

Steer relies on two points of evidence to suggest that NERL staff are paid above market rates, neither of which is robust to careful consideration.

- Steer argues that NERL staff pay has grown by more over the period 2003-2019 than the Office of National Statistics (ONS) index of Average Weekly Earnings (AWE) in the Transport & Storage sector. Most of the components of the Transport & Storage sector are not relevant comparators for NERL staff (for example, warehousing or postal and courier activities). Further, Steer's finding is sensitive to the choice of period: over 2015-2019 NERL pay has grown by less than AWE in Transport & Storage. Steer does not explain its choice to focus on the period 2003-2019.
- Steer argues that annual pay for each NERL staff category is above the upper quartile of mean pay among UK comparator occupations, based on 2019 data from the Annual Survey of Hours and Earnings (ASHE). However, the variation between NERL staff pay and comparator pay is similar to the variation in pay observed *among* comparator occupations. The difference between NERL staff pay and comparator pay is also smaller for alternative definitions of pay (e.g. hourly rather than annual), which control for the impact of overtime. Finally, a comparison based on mean wages for each occupation alone is insufficient as it disregards the effects of other factors such as experience and qualifications on pay.

In contrast, the two most robust pieces of available evidence show that NERL staff pay is in line with market pay.

- The first piece of evidence to show NERL staff pay is in line with market benchmarks is Steer's own analysis, comparing the pay of NERL's air traffic controllers (ATCOs) to the pay of ATCOs in other countries. ATCOs in other countries are more similar to NERL ATCOs in terms of skills and responsibilities than any of the UK comparator occupations Steer has identified for ATCOs. NERL ATCO pay is below benchmark pay for ATCOs among international comparators using the same upper quartile standard that Steer adopted for its comparisons.
- We prepared a report for NATS in October 2021⁵ showing that NERL pay for negotiated grades in 2021 Q1 was broadly in line with market benchmarks, based on analysis of the

⁵ NERA (6 October 2021), Benchmarking of NERL Staff Pay – Prepared for National Air Traffic Services (NATS). Referred to as NERA (October 2021) thereafter.

pay of comparable individuals in the UK economy using wage equations in conjunction with relevant contextual information. Our analysis accounts for many determinants of pay that Steer’s industry and occupational benchmarking exercises do not, including education, regional effects, hours worked, and unionisation. Steer does not provide any evidence to discount the analysis that we prepared and indeed describes the analysis as “sophisticated”.

The CAA’s Proposal to Link NERL Pay Growth to Pay Growth in the Wider Economy Would Undercompensate NERL Staff

In its base case, the CAA imposes “slower growth in average wages (relative to CPI) than assumed in NERL’s BP” in order to ensure that NERL staff pay is “consistent with overall trends in the economy”.⁶

This proposal from the CAA assumes that NERL seeks to reflect economy-wide conditions in that year in its annual pay awards. In fact, our analysis of NERL’s pay awards over 2016-2022 shows that this is not the case. Over the past six years, NERL pay awards have been less variable than economy-wide pay growth and lower than economy-wide pay growth in all years but one (2018).

It appears that, rather than reflecting year-on-year economy-wide conditions, NERL instead seeks to smooth the impact of economy-wide changes in real-terms pay over multiple years. This is consistent with the specific labour cost pressures that NERL faces, that is, pressure from a heavily unionised labour force with significant bargaining power for predictable, CPI-linked pay growth.

If NERL were to seek to change the approach to setting pay now, based on direction from the CAA, this would risk undercompensating NERL staff for the historical economy-wide pay growth over the last six years. This in turn may expose NERL to the risk of industrial action or a deterioration in labour relations.

In the medium-to-long term, the CAA’s proposed approach of reflecting year-on-year economy-wide changes would not result in cost savings relative to NERL’s approach of smoothing the impact of those changes over multiple years. The apparent short-term reduction in costs over NR23 would likely be offset by relatively higher future costs in periods of robust economy-wide earnings growth. In light of this, the temporary short-run cost savings that the CAA projects over NR23 from its proposed approach are unlikely to justify the downside risks (for example, of industrial action) associated with trying to change the structure of pay awards.

Adopting NERL’s proposed approach offers more certainty to industry participants and reduces the risk of costly industrial action, while ensuring that NERL staff compensation does not exceed efficient market benchmark pay over the medium to long-term.

⁶ CAA (October 2022) CAP2394, p. 101 para 4.48

1. Introduction

NATS (En Route) plc (NERL) commissioned NERA Economic Consulting (NERA) to review and respond to the Civil Aviation Authority's (the CAA's) initial proposals on NERL's staff costs for the NR23 price control.

NERL is a subsidiary of National Air Traffic Services (NATS), a UK-based provider of air traffic control services. NERL is regulated by the CAA for five-year price control periods. The next price control period, NR23, covers the calendar years 2023-2027. NERL submitted its Business Plan (BP) for the NR23 price control on 7 February 2022.⁷ In its BP, NERL outlined its expected costs over the control period, including its staff costs.

Around 90 per cent⁸ of NERL's staff costs come from negotiated grades (ATCO, TATC, ATSA, ATCE, STAR and MSG staff groups).⁹ NERA provided a report to NATS in October 2021¹⁰ showing that NERL pay for negotiated grades in 2021 Q1 was broadly in line with the market compensation that NERL staff could be expected to obtain outside of NERL, based on analysis of determinants of pay in the UK economy using wage equations.

The CAA published its own initial proposals for NR23 in October 2022.¹¹ The CAA reports that its proposals are based on analysis by its consultants, Steer.¹²

This report contains our review of, and response to, Steer's analysis and the CAA's conclusions. The structure of this report is as follows:

- Section 2 provides an overview of the proposals on NR23 staff costs in both NERL's BP and the CAA's initial proposals and explains how we link the analysis in Steer's report to the CAA's initial proposals.
- Section 3 considers the different pieces of analysis of staff costs prepared by both Steer and NERA. The two most robust pieces of analysis are Steer's comparison against other air navigation service providers (ANSPs) and our analysis combining wage equations and relevant contextual information. Both pieces of analysis show that NERL pay for negotiated grades is in line with market benchmarks.
- Section 4 shows that the CAA's base case is likely to undercompensate NERL staff for historical real-terms pay pressures that are spread over time by NERL's current approach to pay awards, and that it therefore exposes NERL to the risk of industrial action.
- Section 5 concludes.

⁷ NATS (7 February 2022), NATS proposed business plan for upcoming price control (NR23).

⁸ Data received from NATS. Value refers to staff costs in 2022.

⁹ For a more detailed description of each staff group, see: Steer (September 2022), NR23 price control review: support on cost assessment for NR23 period and reconciliation review (2020-2022), p. 95-96. Henceforth Steer (September 2022).

¹⁰ NERA (6 October 2021), Benchmarking of NERL Staff Pay – Prepared for National Air Traffic Services (NATS). Henceforth NERA (October 2021).

¹¹ UK Civil Aviation Authority (October 2022), Economic regulation of NATS (En Route) plc: Initial Proposals for the next price control review ("NR23"). Henceforth CAA (October 2022) CAP2394.

¹² Steer (September 2022).

2. Background: the CAA's Initial Proposals Allows Lower Staff Operating Costs than NERL's Business Plan

In this section, we set out the proposals on staff costs from NERL's BP and the CAA's initial proposals.

- Section 2.1 summarises NERL's approach to staff costs in its BP and the evidence from our 2021 report that NERL staff pay is in line with market benchmarks.
- Section 2.2 summarises the CAA's initial proposals. The CAA has put forward two cases for staff costs: a "base case" that it currently proposes to adopt, and a "low case" that it has left open to further consideration. In each of the two cases, the CAA assumes lower staff costs over NR23 than NERL's BP. The two cases appear to be linked to specific recommendations in Steer's report, as we explain in this section.

2.1. NERL Business Plan

NERL outlines its expected staff costs for NR23 in Appendix J of its Business Plan.¹³ In this report, we focus specifically on the part of staff costs due to pensionable pay for negotiated grades.

Appendix J of NERL's BP also references our 2021 report, which shows that NERL's pay in the lead-up to NR23 (specifically, at 2021 Q1) is broadly in line with market benchmarks.¹⁴ This result is shown in Figure 2.1, which is a reproduction of Figure 1 in our 2021 report.

For the ATCO, MSG, and STAR grades, Figure 2.1 shows that NERL pay is within the range of values for market benchmark pay estimated from our wage equations. In the case of ATSAs and ATCEs, NERL pay is above the range of values estimated from our wage equations. However, as NERL explains in Appendix J of its BP, our wage equations do not account for all determinants of pay and as such may underestimate the true market rate for these grades:

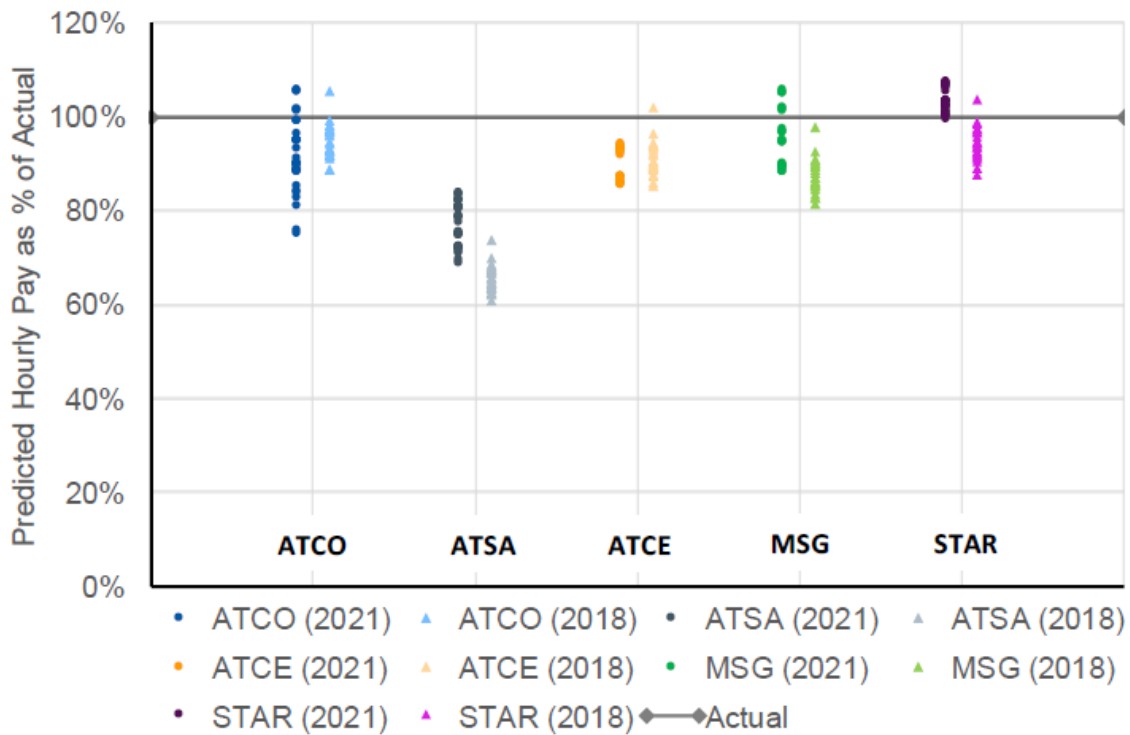
- For ATCEs, the pay variable from the public dataset used in our main wage equations is not directly comparable to the NERL pay variable.¹⁵ In our 2021 report, we show that if we restrict our analysis to a subset of the public data for which we are more confident that the pay variable is comparable, ATCE pay is within the range of estimated benchmark values.
- For ATSAs, it is difficult to identify appropriate comparator occupations in the public dataset, given the particular safety responsibilities of ATSAs. The public dataset does not contain any variable that captures whether an individual's job involves responsibility for the safety of others.

¹³ NATS (7 February 2022), NATS proposed business plan for upcoming price control (NR23), Appendix J: Operating Costs. Henceforth NATS (7 February 2022) Appendix J.

¹⁴ NATS (7 February 2022), Appendix J, p. 5

¹⁵ The NERL pay variable is total pay and therefore includes additions to basic pay such as bonuses and overtime. The variable used from the Labour Force Survey often does not include additions to basic pay. See NERA (06 October 2021), p. 35 Section 4.4

Figure 2.1: NERL Actual Pay is in Line with Predicted Wages from the Wage Equations in our 2021 Report



Source: NERA analysis of LFS and NERL data¹⁶

2.2. The CAA's Initial Proposals

In its initial proposals, the CAA suggests that increases in staff pay in real terms “*have not been fully justified*” by NERL. In particular, based on the benchmarking analysis in Steer’s report, the CAA concludes that “*total compensation has been shown to significantly exceed market rates*”.¹⁷

The CAA therefore proposes two alternative cases that lie below NERL’s proposals: a base case that limits real-terms pay increases over NR23, and a low case that imposes reductions in real-terms pay over NR23. The CAA does not define these alternatives precisely but describes them as follows:¹⁸

- **Base case:** the CAA reports that it assumes “*slower growth in average wages (relative to CPI) than assumed in NERL’s BP*” and that this reduces staff opex in NR23 compared with NERL’s BP by “*around £10 million*”.
- **Low case:** the CAA reports that it has “*taken account of the top-down staff cost benchmarking by Steer*” and we understand that the CAA has communicated to NATS

¹⁶ NERA (October 2021), Figure 1, p. iii

¹⁷ CAA (October 2022) CAP2394, p. 95 para 4.26

¹⁸ CAA (October 2022) CAP2394, p. 101 para 4.48

that this results in a staff opex allowance for NR23 that is £40 million lower than the staff opex cost in NERL's BP.

We understand that the CAA is currently proposing to apply the allowance under its base case, although it has left open the possibility of applying the allowance under the low case if supported by stakeholder feedback.¹⁹

The CAA does not provide precise details of how it derives the staff opex allowance in either case. We set out below what we assume to be the CAA's approach in each case, based on our review of the accompanying Steer report.

2.2.1. The CAA's base case may be related to Steer's "bottom-up" analysis

For the base case, the CAA does not specify how much slower it assumes wage growth to be, relative to the NERL BP. We assume that the base case is related to the "bottom-up" staff cost in the Steer report, since Steer's bottom-up methodology also assumes slower wage growth relative to the NERL BP and the estimates of the adjustment from Steer's bottom-up method are in the region of the CAA's £10 million.²⁰

The CAA claims that its base case would ensure that NERL staff pay is "*consistent with overall trends in the economy*".²¹ Steer's report challenges NERL's proposed annual pay award on similar grounds. Steer argues that:²²

- The industry remains in a recovery period and so above-inflation salary increases, which are "*often associated with productivity improvements*", may be unjustified; and
- The current high inflationary environment "*calls into question the affordability of above inflation pay awards over the next years*".

As such, Steer proposes, based on its bottom-up analysis, two alternative approaches to annual pay awards over NR23, as follows:

- A "low % change" case where the growth in NERL staff pay is restricted relative to NERL's BP in the first year of the price control period, resulting in a £7.0m decrease in operating costs versus NERL's NR23 BP.²³
- A "high % change" case where the growth to NERL staff pay is restricted relative to NERL's BP in the first two years of the price control period, resulting in a £12.7m decrease in operating costs versus NERL's NR23 BP.²⁴

We assume that the CAA's base case involves one of these two approaches.

¹⁹ CAA (October 2022) CAP2394, p. 101 para 4.50

²⁰ Steer's estimates are between £7.0m and £12.7m.

²¹ CAA (October 2022) CAP2394, p. 101 para 4.48

²² Steer (September 2022), Table 6, p. xvii

²³ Steer (September 2022), Table 6, p. xvii

²⁴ Steer (September 2022), Table 6, p. xvii

2.2.2. The CAA's low case is related to Steer's "top-down" analysis

We understand from NERL that the total allowance for staff costs under the low case is £1,263.5m.²⁵ This is a reduction of £40m relative to NERL's BP.²⁶ Since the CAA states that its low case "takes account of" the top-down staff cost benchmarking by Steer, we assume that the CAA's low case is based on Steer's top-down approach. However, we are not able to find the £40m cost reduction that the CAA identifies with the low case in the Steer report.

Steer's top-down analysis of potential efficiency savings is based on benchmarking NERL staff pay against comparators. Steer proposes a top-down approach to setting NERL's NR23 staff cost allowances based on this benchmarking exercise, whereby NERL pay should be brought in line with benchmark pay over a five- or ten-year period. It proposes two cases:

- A "low % change" case based on the difference between NERL staff pay growth and growth in Average Weekly Earnings (AWE) for the Transport & Storage sector over 2003-2019. In its report, Steer provides two different results for what is apparently the same calculation. In Table 5, para 2.5.45, and Table A.1 Steer reports that growth in AWE Transport & Storage was 5.4 per cent lower than growth in NERL staff pay over the period. However, in Section 2.3 Steer reports that NATS pay growth exceeded AWE Transport & Storage growth by 5.7 per cent.²⁷ We have replicated the 5.4 per cent figure using Steer's Figure 2.7 but we are unable to replicate the 5.7 per cent figure.
- A "high % change" based on benchmarking NERL staff category annual pay in 2019 against the upper quartile of annual pay of comparator occupations in the UK, as reported in the Annual Survey of Hours and Earnings (ASHE).²⁸ In its report, Steer provides two different results for what is apparently the same calculation. In Table 5, para 2.5.45, and Table A.1 Steer reports that NERL pay was above benchmark by between 9 per cent (MSGs) and 34 per cent (ATSAs).²⁹ However, in Section 2.3 Steer reports that this range is between 10 per cent (MSGs) and 52 per cent (ATSAs).³⁰ We are able to replicate the 10-52 per cent range in Section 2.3 using data from the ASHE for 2019. We are unable to replicate the range of 9-34 per cent using the same ASHE data.

Steer favours a ten-year glide path to bring NERL pay in line with benchmarks, and reports that implementing this would result in an £18.8m decrease in NR23 staff costs relative to NERL's BP for the "low % change" case and a £64.5m decrease for the "high % change" case.

The CAA's proposal of a £40m decrease in NERL's allowances compared to NERL's NR23 BP lies within the £18.8m to £64.5m range proposed by Steer. However, why the CAA

²⁵ CAA (October 2022) CAP2394, p. 102 Table 4.3

²⁶ CAA response to NERL clarification question on IPs.

²⁷ Steer (September 2022), p. 25 para 2.3.40

²⁸ Steer suggests that it uses data from the Labour Force Survey (para 2.3.26) but this seems unlikely as the numbers presented in Figures 2.10-2.13 exactly match the relevant data from the ASHE.

²⁹ Specifically, this means that NERL pay is equal to 109 per cent of the benchmark for MSGs and 134 per cent of the benchmark for ATSAs. The numbers for the other two grades are 121 per cent for ATCOs and 124 per cent for ATCEs.

³⁰ That is: 26 per cent higher than the upper quartile of benchmarks for ATCOs, 52 per cent higher for ATSAs, 32 per cent higher for ATCEs and 10 per cent higher for MSGs.

selected £40m as opposed to another number within Steer's range is unclear and unjustified in the CAA's initial proposals.

3. The CAA's Low Case Rests on an Unfounded Premise that NERL Pay is Above Benchmarks

The CAA's low case rests on a premise that NERL salaries are currently above benchmark salaries and should be reduced, in real terms, to bring them into line with benchmark salaries. In this section, we demonstrate that the evidence that Steer and the CAA rely on to justify this premise is not robust. We show that, based on a more comprehensive assessment of the available evidence, NERL staff pay is not currently above market benchmarks and so no real-terms reduction is needed.

This section proceeds as follows:

- Section 3.1 considers Steer's "low % change" which benchmarks historical NERL staff pay growth to historical growth in AWE in the Transport & Storage sector. We explain that the entire Transport & Storage sector (which includes warehouses and postal services) is not an appropriate benchmark for NERL staff and that Steer's results are sensitive to the period of analysis that it considers.
- Section 3.2 examines Steer's benchmarking of NERL staff to comparator occupations. We demonstrate that the difference that Steer finds between NERL pay and the *upper* quartile of mean pay across comparator occupations is within the normal range of variation across occupations in a comparator group, and therefore does not constitute evidence that NERL staff pay is above market benchmarks. We also highlight that Steer's choice of the upper quartile implies that NERL staff must be paid less than the upper end of the range of comparator occupations, which does not capture the degree of training and specialisation of NERL staff. In addition, the results that Steer obtains are sensitive to its choice of summary statistic and pay variable.
- Section 3.3 shows that restricting the wage equations in our previous report to just include Standard Occupational Classification (SOC) codes and time significantly reduces the explanatory power of the wage equations compared to also including other determinants such as education. This demonstrates that Steer's benchmarking against average pay of comparator occupations has significantly lower explanatory power than our wage equations.
- Section 3.4 demonstrates that Steer's benchmarking against other ANSPs provides supporting evidence that NERL ATCO pay is consistent with market benchmarks because it is within the range of ATCO pay for international comparators.
- Section 3.5 concludes.

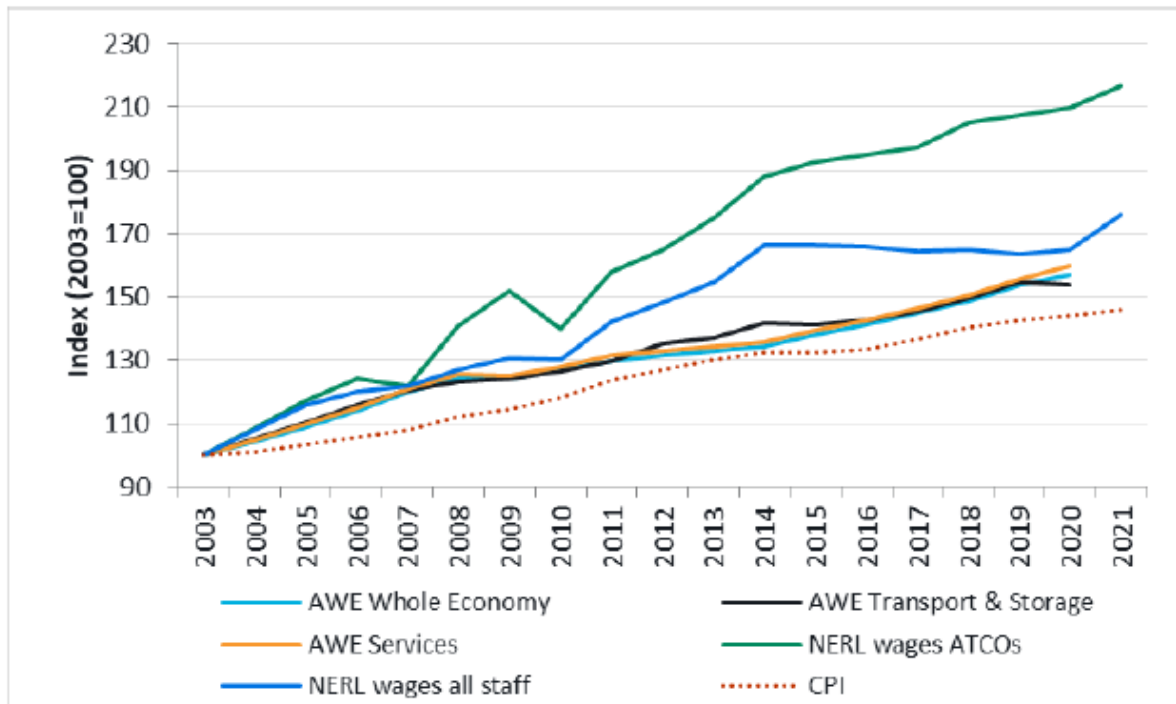
3.1. Benchmarking to Historical Pay Growth in Transport & Storage

Steer's "low % change" case targets a real-terms adjustment of *minus* 5.4 per cent³¹ to NERL staff pay, based on the difference in growth between NERL staff pay and growth in the ONS

³¹ We extracted data from Figure 2.7 in Steer's report to calculate the growth in NERL staff wages and AWE in the Transport & Storage sector from 2003 to 2019, equal to 62.5% and 54.2% respectively. We then took the Fisher difference of these, equal to $(1+0.625)/(1+0.542)-1$, to obtain a difference in growth rates of 5.4%.

AWE Transport & Storage index over the period 2003-2019. This is shown in Figure 3.1, which reproduces Figure 2.7 of Steer's report.

Figure 3.1: Index (2003=100) of nominal Average Weekly Earnings (AWE) (2003-2021)



Source: Steer³²

Steer's proposal is based on at least three unjustified assumptions.

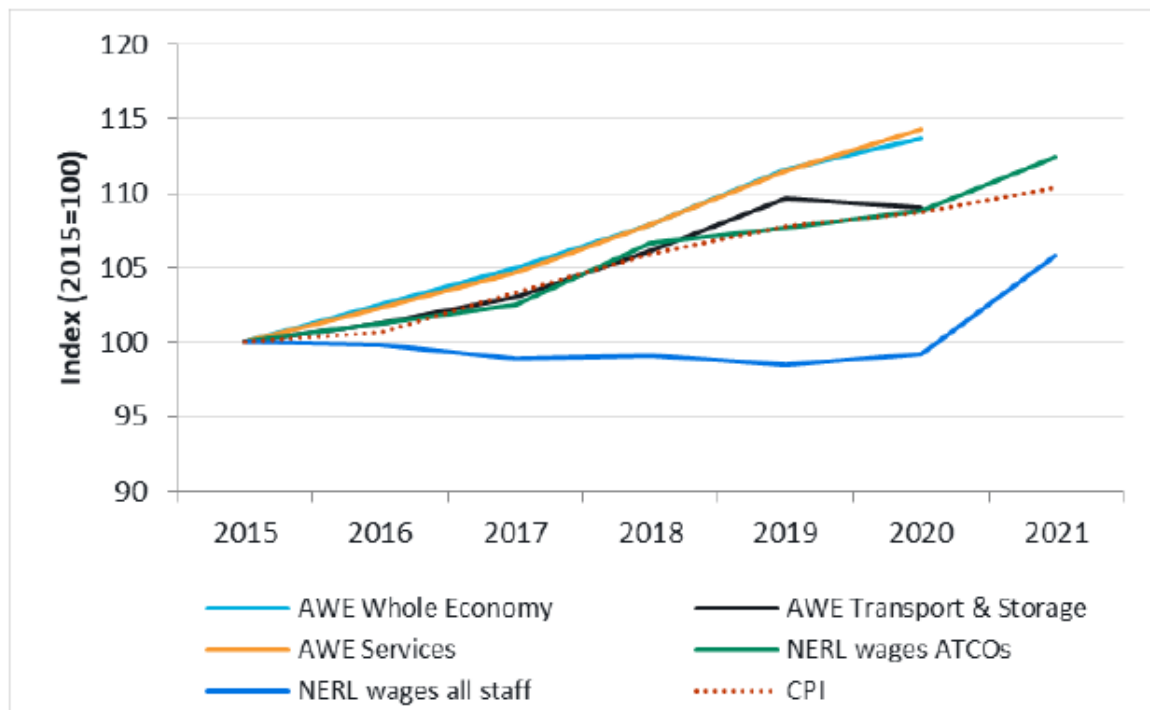
First, Steer assumes that the period 2003-2019 is an appropriate period over which to compare wages between groups. The choice of period is salient given that Steer's own analysis shows that cumulative growth in pay for NERL staff is actually *below* cumulative growth in AWE Transport & Storage over the period 2015-2021.³³ We show this in Figure 3.2, which reproduces Figure 2.6 of Steer's report.

Steer offers no explanation for its choice of the 2003-2019 period for its "low % change" case, despite the fact that its own analysis from 2015 to 2021 shows the opposite result of AWE in the Transport & Storage sector outperforming NERL wages.

³² Steer (September 2022), p. 20 Fig 2.7

³³ Steer (September 2022), p. 19 Fig 2.6

Figure 3.2: Index (2015=100) of nominal Average Weekly Earnings (AWE) (2015-2021)



Source: Steer³⁴

Second, Steer assumes that pay growth across the entire Transport & Storage sector is a relevant comparator for NERL staff pay. This sector as defined for the AWE is broad, containing a number of industries which may not be representative of the wage pressures faced by NERL. The Transport & Storage sector as defined for the AWE includes:

- Land transport & transport via pipelines;
- Water transport;
- Air transport;
- Warehousing & support activities for transportation; and;
- Postal & courier activities.³⁵

Air transport is only one of five components of Transport & Storage and the other components are unrepresentative of the work that NERL staff do. For example, the demand and supply of air traffic controllers is unlikely to be related to the demand and supply of warehouse operatives and postpeople. As such, the entire Transport & Storage sector is not an appropriate comparator against which to benchmark NERL staff.

Indeed, given the breadth of occupations included within high-level 2-digit SIC sectors such as Transport & Storage, any benchmarking on the basis of such a sector in its entirety is unlikely to give a reasonable approximation to a market-based wage for NERL staff. A

³⁴ Steer (September 2022), p. 19 Fig 2.6

³⁵ The sector definition that the ONS uses for AWE Transport & Storage is based on the SIC 2007 classification. See Office for National Statistics (ONS), earn03nov2022.xls, 'Definitions' Sheet. Excel file can be obtained from the following link: [EARN03: Average weekly earnings by industry - Office for National Statistics \(ons.gov.uk\)](https://www.ons.gov.uk/earn03nov2022.xls)

robust benchmarking must account for not only industry but also occupation, education, tenure, and other characteristics that influence pay. Our wage equation benchmarking meets these requirements.

Third, Steer assumes that any growth in NERL pay above growth in AWE Transport & Storage must be excessive and unjustified. Steer offers no evidence to support this position.

- Steer does not seem to object to differences in pay growth between different parts of the economy. It notes that AWE Transport & Storage outperformed AWE Whole Economy over 2003-2019 and seems to accept that this pay differential is justified (insofar as it does not suggest a correction to the historical growth in AWE Whole Economy).³⁶
- In fact, there is evidence from Steer's report itself to suggest that a difference in pay growth between NERL staff and Transport & Storage more broadly may be justified. Steer notes that there was "*overall growth in air traffic over the period*".³⁷ A sustained trend of growth in air traffic would have increased long-term demand for air traffic control staff and therefore led to real-terms pay growth justified by market conditions of supply and demand.
- The CAA also notes that NERL achieved substantial ATCO productivity improvements for much of this period, with productivity growing by 1.75 per cent per year on average over 2009-2019.³⁸ Steer itself suggests that productivity improvements are often associated with real-terms pay increases.³⁹ In contrast, several of the industries that appear in the Transport & Storage sector actually exhibited *negative* productivity growth over the same 2009-2019 period, including land transport and transport via pipelines (*minus* 0.6 per cent), warehousing and support activities (*minus* 4.6 per cent), and postal and courier activities (*minus* 0.5 per cent).⁴⁰

3.2. Benchmarking to 2019 Pay in UK Comparator Occupations

Steer's "high % change" case targets a real-terms downward pay adjustment that is specific to each of NERL's negotiated grades. The adjustment is based on the difference between NERL staff pay and the upper quartile of mean pay across a number of comparator occupations as reported in the 2019 ASHE dataset.

The main limitation of Steer's analysis is that it is based on occupation alone, and occupation is only one of many factors that determine market pay. Our wage equation approach accounts for many more factors, such as education, location, and experience, all of which also influence pay. We further discuss the advantages of the wage equation approach in Section 3.3 below.

In this section, we discuss two additional limitations of Steer's analysis on its own terms.

³⁶ Steer (September 2022), p. 19 Fig 2.6

³⁷ Steer (September 2022), p. 19 para 2.3.20

³⁸ CAA (October 2022) CAP2394, p.100 para 4.43

³⁹ Steer (September 2022), p. xvii, Table 5

⁴⁰ The two remaining industries in the sector exhibited positive productivity growth. These were water transport (8.2 per cent growth) and air transport (10.2 per cent growth). See ONS (11 January 2022), Labour productivity statistics for division-level industries.

- First, we demonstrate that the difference between NERL pay and the *upper* quartile of mean pay across comparator occupations is within the normal range of variation across occupations in a comparator group. In particular, there are similar differences between the occupation with the lowest mean pay and the *lower* quartile in each comparator group;
- Second, the specific target Steer sets is sensitive to its choice to use the upper quartile of comparator occupations as the summary statistic to set the target (rather than e.g. the maximum) and to its choice to use annual pay (rather than e.g. hourly pay) as the basis of its analysis. Steer does not justify either of these choices. Varying these choices changes the target substantially and in fact that the particular choices that Steer makes lead to a target towards the lower end of the credible range.

3.2.1. The variation between NERL and comparators is similar to the variation among comparators

Figures 2.10 to 2.13 of Steer's report (reproduced in Figure 3.3, below) show that NERL staff in the ATCO, ATSA, ATCE, and MSG grades receive higher annual pay than the mean annual pay for any of the comparator occupations that Steer selects. This is not surprising: NERL staff are highly skilled and specialised, meaning that they are not easily replaced, and their unions have a significant degree of influence. We would therefore expect NERL pay to be at the upper end of the range of identifiable comparator occupations (NERL pay is also at the upper end of the range for the selection of comparator occupations that we use in our wage benchmarking analysis).

This is particularly true when the data consists only of mean pay for comparator occupations and each comparator occupation comprises a relatively large group of individuals. It is entirely possible that the pay of the most skilled and specialised aircraft pilots and flight engineers exceeds the pay of the most skilled and specialised NERL ATCOs, even if the mean pay of aircraft pilots and flight engineers is below the mean pay of NERL ATCOs.

Figure 3.3: Steer Benchmarks NERL Staff Pay Against Comparator Sets Which Themselves Cover a Wide Pay Band (NERL Staff Group Appears on Left of Each Chart)

Figure 2.10: NATS ATCO salary benchmarking with other industries (2019)

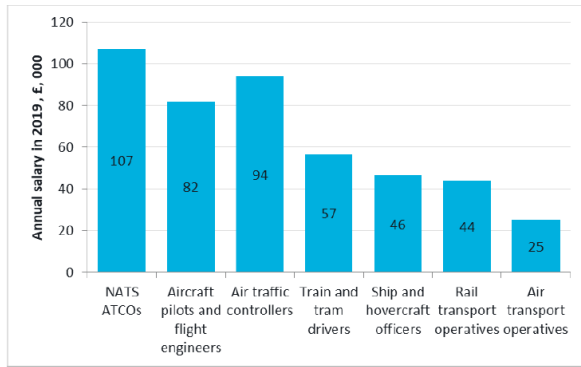


Figure 2.11: NATS ATSA salary benchmarking with other industries (2019)

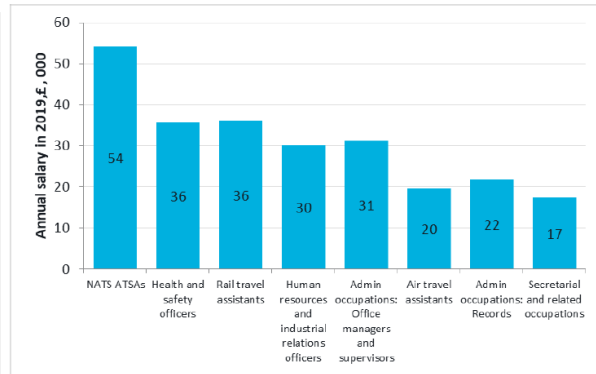


Figure 2.12: NATS ATCE salary benchmarking with other industries (2019)

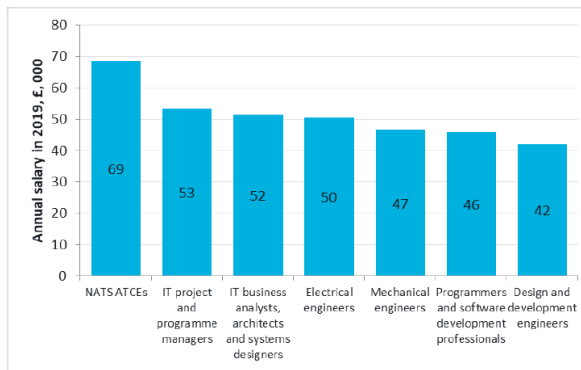
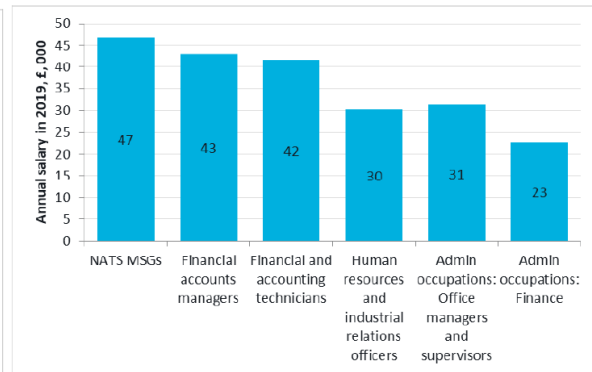


Figure 2.13: NATS MSG salary benchmarking with other industries (2019)



Note: ATCOs top-left, ATSAs top-right, ATCEs bottom-left, MSGs bottom-right
 Source: Steer⁴¹

Steer presents statistics showing that NERL pay for each staff grade lies above the upper quartile of pay across comparators for that staff grade. In particular, NERL staff are paid between 10 and 52 per cent above the upper quartile across comparators. Steer suggests that this provides evidence that NERL staff are paid above market rates.

However, this result reflects a normal degree of variability in pay across a group of comparator occupations. To illustrate this point, we consider a similar analysis at the other end of the scale: we compare the occupation with the lowest mean pay in each comparator group to the lower quartile of pay within that comparator group.⁴² We summarise the results in Table 3.1.

⁴¹ Steer (September 2022), pp. 22-24

⁴² We exclude NERL staff pay when calculating the lower quartile.

Table 3.1: The Difference Between NERL Pay and the Upper Quartile is Close to the Difference Between the Lowest Paid Comparator and the Lower Quartile

NERL Staff Group	Difference Between NERL Pay and Upper Quartile Pay as % of Upper Quartile	SOC in Comparator Group with Lowest Mean Pay	Difference Between Lowest SOC Pay and Lower Quartile Pay as % of Lower Quartile
ATCO	26%	Air Transport Operatives	-45%
ATSA	52%	Secretarial and Related Occupations	-20%
ATCE	32%	Design and Development Engineers	-10%
MSG	10%	Administrative Occupations: Finance	-26%
STAR	*	Health and Safety Officers**	-16%**

*STAR staff group not considered in Steer report

**STAR comparator group based on comparator SOC's in NERA report⁴³

Source: NERA analysis of NERL and ASHE data⁴⁴

Table 3.1 shows the differences between the profession with the lowest mean pay in each comparator group and the lower quartile of pay in the comparator group. As can be seen from the table, the minima are between 10 and 45 per cent of the lower quartile across comparators. In other words, by Steer's method, the lowest paid staff category in the sample is "underpaid" by 10 to 45 per cent, which is close to the apparent 10 to 52 per cent overpayment at NERL.

The similarity between apparent "overpayment" at NERL and "underpayment" at the lowest paid comparator leads to one of three conclusions:

1. Steer's assumption that the mean pay within comparator groups provide useful comparators for each other is incorrect;
2. there is a normal rate of variation across professions which does not indicate problematic under or overpayment and that NERL's pay does not stand out unusually from the comparator professions; or
3. the lowest paid staff categories are systematically, and in some cases materially, underpaid.

Of these, the third is not plausible given the competitive labour markets of comparator professions (e.g. air transport operatives, financial administrators). Both the first and second conclusions have some merit.

Regarding the first conclusion, the mean pay of approximately comparable occupational groups alone could be relied upon to provide a benchmark for the pay of other occupational groups as part of the evidence base. However, a robust analysis must also account for other characteristics (e.g. educational qualifications, location) that influence pay but differ across comparator occupations; our wage equation analysis, discussed in Section 3.3, does this.

⁴³ NERA (October 2021), Table 3.2, p. 11

⁴⁴ Data received from NATS.

Therefore, insofar as comparisons can be made across occupations, we arrive at the second conclusion: the percentage differences on the scale found by Steer are consistent with the inherent, market-determined variability in pay within a group of comparator occupations. In fact, these percentage differences may understate that variability since they are based on means within occupational groups (rather than the full range of pay values in each occupational group).

3.2.2. Steer's analysis is sensitive to the definition of pay and the chosen summary statistic

Steer's real-terms pay adjustment targets for NERL staff are based on calculations using annual pay, rather than any other definition of pay (e.g. hourly pay). They are also based on a comparison against the upper quartile of pay across comparator occupations, rather than any other summary statistic (e.g. maximum). Steer justifies neither of these choices.

Regarding *the definition of pay*, Steer's choice to use annual pay⁴⁵ differs from the approach we took in our wage equation analysis, where we used hourly pay. We chose hourly pay because it accounts for any differences in NATS staff pay versus comparator occupations which may be explained by the number of hours worked in each occupation.

We examine the sensitivity of Steer's target to using different definitions of pay. For ATSA and ATCEs, using hourly pay instead of annual pay reduces the gap by 10 percentage points. We report the full results of our sensitivity analysis in Appendix B.

Regarding *the choice of summary statistic*, the use of the upper quartile is flawed insofar as it implies that on average NERL staff must be paid less than the average pay for upper end of the range of comparator occupations. Given the degree of training and specialisation of NERL staff, it is likely that their market pay would be towards the upper end of the range paid to staff within comparator occupations. For example, ATCOs are more comparable to skilled pilots than they are to air transport operatives, a category which includes baggage and cargo handlers and refuelling staff.⁴⁶ Mean pilot pay is at the upper end of the range pay for ATCO comparator occupations and pay for experienced pilots is likely to be well above that mean.

We have examined the sensitivity of NERL's target to using either the upper quintile or maximum of the range of values for comparator occupations. For ATCO staff, using the maximum halves the target adjustment. Given that ATCO staff represent a larger cost to NERL than TATC, ATSA, ATCE, STAR and MSG, staff combined (in 2022 ATCO staff represent a cost of £114m whilst pay for the other grades represent a cost of £110m⁴⁷), reducing the adjustment by half would have a non-trivial impact on total costs. We report the full results of this analysis in Appendix B.

⁴⁵ We understand that Steer uses annual gross pay for all employees (full-time and part-time) from the ASHE dataset. We also understand from the ONS that annual gross pay includes basic pay, overtime pay, incentive pay, shift premium pay and other pay. Link: [Guide to interpreting Annual Survey of Hours and Earnings \(ASHE\) estimates - Office for National Statistics \(ons.gov.uk\)](https://www.ons.gov.uk/methods/earnings/ashe)

⁴⁶ UK Government Home Office (9 November 2022), Immigration Rules Appendix Skilled Occupations, Table 5. Link: <https://www.gov.uk/guidance/immigration-rules/immigration-rules-appendix-skilled-occupations>

⁴⁷ Data received from NATS. Values refer to total pensionable pay by staff group in nominal terms.

Table 3.2 presents the minimum and maximum pay difference between NATS staff groups and comparator occupations across our different alternative specifications based on the definition of pay and choice of summary statistic. Across all staff groups, Steer's results based on the upper quartile and annual gross pay are at the upper end of the range for each staff group. This suggests that Steer's targets, even on their own terms, are likely to be overstated.

Table 3.2: The Difference Between NERL Pay and Benchmark Comparator Pay Varies by Definition of Pay Variable and Choice of Benchmark Summary Statistic

	ATCO	ATSA	ATCE	MSG	STAR
Steer Reported Difference	26%	52%	32%	10%	n/a*
<i>Results varying pay definition (annual, hourly) and benchmark statistic (quartile, maximum)</i>					
Minimum Difference	14%	33%	14%	0%	-2%**
Maximum Difference	26%	57%	32%	14%	7%**

Note: (1) The difference is reported as a % of the benchmark.

*(2) *STAR staff group not considered in Steer report.*

*(3) **STAR comparator group based on comparator SOCs in NERA report⁴⁸*

Source: NERA analysis of NERL and ASHE data⁴⁹

3.3. Benchmarking Based on Wage Equations

The comparison of means conducted by Steer only considers one determinant of pay: occupation. In practice, there are many other factors that determine pay. Educational qualifications, experience, and tenure in role all affect an individual's pay. Location also matters, with workers in cities such as London typically able to command a premium. Other characteristics of the job such as typical hours worked and whether pay is subject to union agreement also affect pay.

The wage equation analysis that we conducted for NERL accounts for all of these other determinants of pay and therefore better reflects the pay that NERL staff could command if they were to seek employment elsewhere than does Steer's comparison of mean pay by occupation alone.

To demonstrate how much of a contribution these other factors make to pay, we estimate five additional wage equations that only account for occupation (i.e. do not account for other factors) and compare these to the estimated wage equations from our 2021 report (which do account for other factors). Specifically, the additional wage equations that we estimate include (a) indicators for each staff group, capturing all SOCs that are comparators for that staff group, and (b) different representations of time effects.⁵⁰ We estimate these equations using the same data that we used in our 2021 report, using the same outcome variable (total hourly pay).

⁴⁸ NERA (October 2021), Table 3.2, p. 11

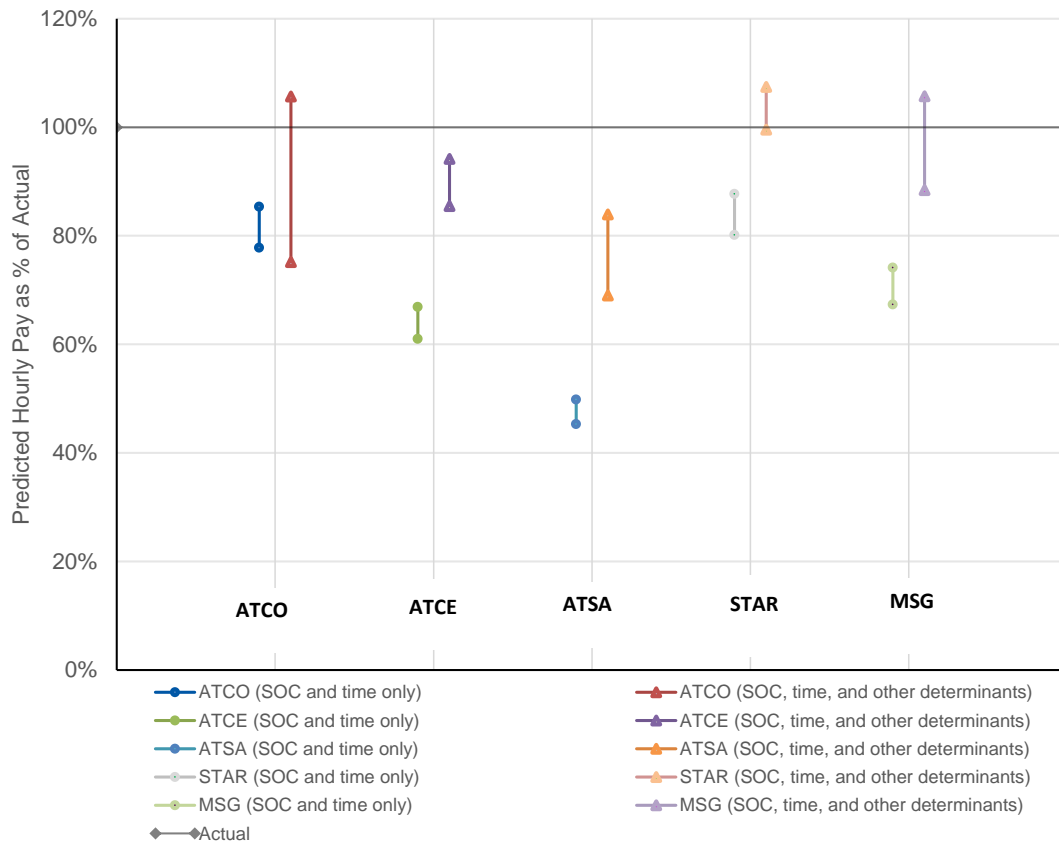
⁴⁹ Data received from NATS.

⁵⁰ The SOC indicators are as described in Section 3.2.2.1 of our 2021 report. The different representations of time are summarised in Table 3.1 of our 2021 report. The five equations that we estimate are (i) SOC and intercept only (ii) SOC, quarter indicators, and intercept (iii) SOC, quarter indicators, SOC-quarter interactions, and intercept (iv) SOC, time trend, and intercept (v) SOC, time trend, SOC-time trend interactions, and intercept.

These additional wage equations only explain about a quarter of the total variation in pay explained by our wage equations that account for other factors such as education and geographical location. We use the adjusted-R2 to measure the amount of variation in pay explained by a given wage equation.⁵¹ Across the five additional wage equations, the minimum adjusted-R2 is 0.096 and the maximum adjusted-R2 is 0.105; the adjusted-R2 for our wage equations is typically around 0.4, as explained in Section 4.2 of our 2021 report.⁵²

Not only do the wage equations using only SOC codes explain less of the variation in pay than the wage equations including more factors, but they also predict systematically lower pay for NERL staff. This is shown in Figure 3.4. For all NERL negotiated grades except ATCOs, the *maximum* predicted hourly pay from equations with SOC and time only is below the *minimum* predicted hourly pay from more comprehensive wage equations.

Figure 3.4: Wage Equations with SOC, Time and other Determinants Predict an Hourly Pay that is closer to Actual Hourly Pay than Wage Equations with Only SOC and Time



Source: NERA analysis

It is not surprising that methods which only account for occupation, such as Steer’s method or the wage equations with only SOC and time presented here, lead to particularly low predictions of NERL staff pay. NERL staff average characteristics are different from the average characteristics of their SOC comparators, in ways that would lead NERL staff to

⁵¹ The adjusted-R2 measures the goodness-of-fit of regression models, corrected for the number of explanatory variables in the model. In general, the higher the adjusted-R2, the better the fit. See NERA (October 2021), p. 23

⁵² NERA (October 2021), p. 23

have higher pay. In particular, NERL staff are more highly educated, work longer hours, are more likely to work full-time, and have longer tenure.⁵³ NERL staff are also concentrated in areas that command a pay premium in our wage equation analysis (Scotland and the South of England).⁵⁴

Steer does not dispute the validity of the wage equation approach. It describes the “*sophistication*”⁵⁵ of our analysis and accepts the range of values resulting from the wage equations. However, Steer interprets the range of estimated values differently than we do.

- For ATSAs and ATCEs, whose pay sits above the range estimated from the wage equations, Steer dismisses the evidence put forward in our 2021 report to explain the discrepancy as “*qualitative reasons*”. Steer suggests that the “*excessive*” pay for ATSAs and ATCEs cannot be explained by, for example, the imperfection of comparator roles. Steer therefore concludes that the pay for these staff categories is “*above market rates*”.
- For ATCO, MSG and STAR pay, which our 2021 report found to be within the range of market pay for comparator roles, Steer indicates that our analysis “*is less conclusive*”.⁵⁶

Steer’s interpretation of the results of our wage equation analysis is misleading.

For ATCO, MSG, and STAR pay, our analysis *is* conclusive: it clearly shows that pay for these grades lies within a reasonable range of candidate market benchmarks, once determinants of pay other than occupational code are accounted for. There is therefore no basis for Steer’s low case recommendation that pay for these grades should be reduced over time to align with the mean pay of comparator occupations.

In particular, across all grades the models predicting pay at the upper end of the range are arguably better models than those predicting pay at the lower end of the range. First, the models predicting pay at the upper end of the range are those which account for non-linearities in the relationship between pay and tenure, experience, and hours worked, as explained in Section 4.2 and Figure 4.1 of our 2021 report. Second, there is a positive correlation between the goodness-of-fit of the models (measured by the adjusted-R2) and the level of pay predicted for all grades, as shown in Table 3.3. The positive correlation between the adjusted-R2 and the level of predicted pay for each grade is also shown Figure 3.5 to Figure 3.9: in general, a higher adjusted-R2 (horizontal axis) is associated with a higher value for predicted pay (vertical axis).

⁵³ NERA (October 2021), Appendix A.

⁵⁴ The majority of NERL staff are located in either Scotland or the South of England – see NERA (October 2021), Appendix A and Appendix C4. In our wage equation analysis, both of these regions command a premium relative to our model baseline of the North.

⁵⁵ Steer (September 2022), p. 25, para 2.3.39

⁵⁶ Steer (September 2022), p. 25, para 2.3.39

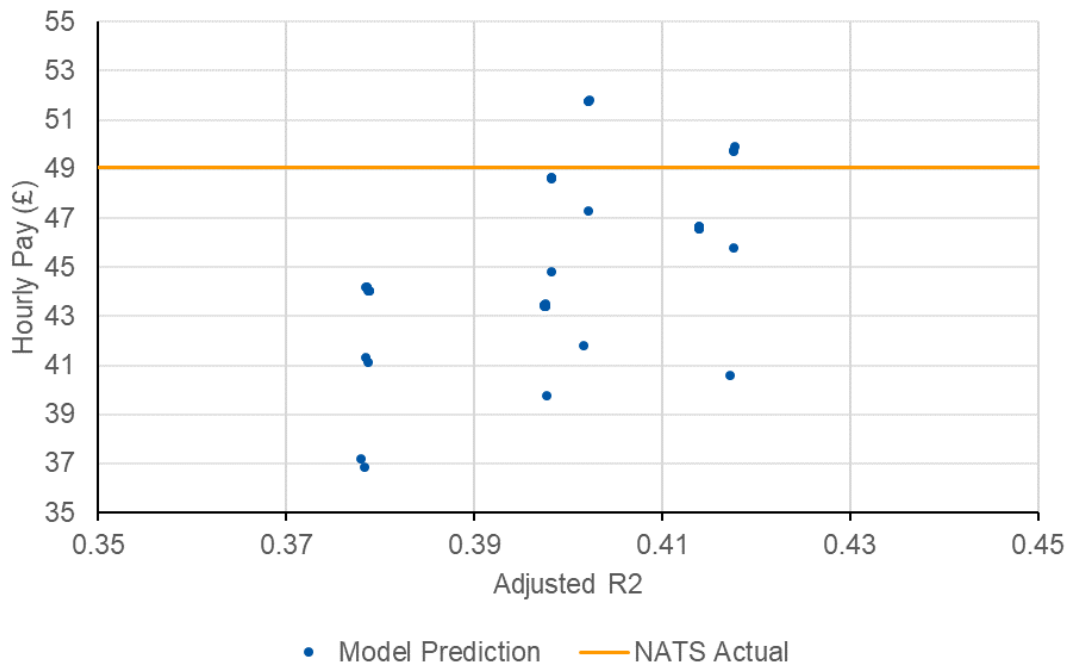
Table 3.3: The Correlation Between Predicted Pay and Adjusted-R2 is Positive for All NERL Grades

	ATCO	ATCE	ATSA	MSG	STAR
Correlation	0.54	0.87	0.92	0.65	0.74

Note: Statistics reported are correlations between predicted pay and adjusted-R2 across all 37 models estimated in our 2021 report.⁵⁷

Source: NERA analysis

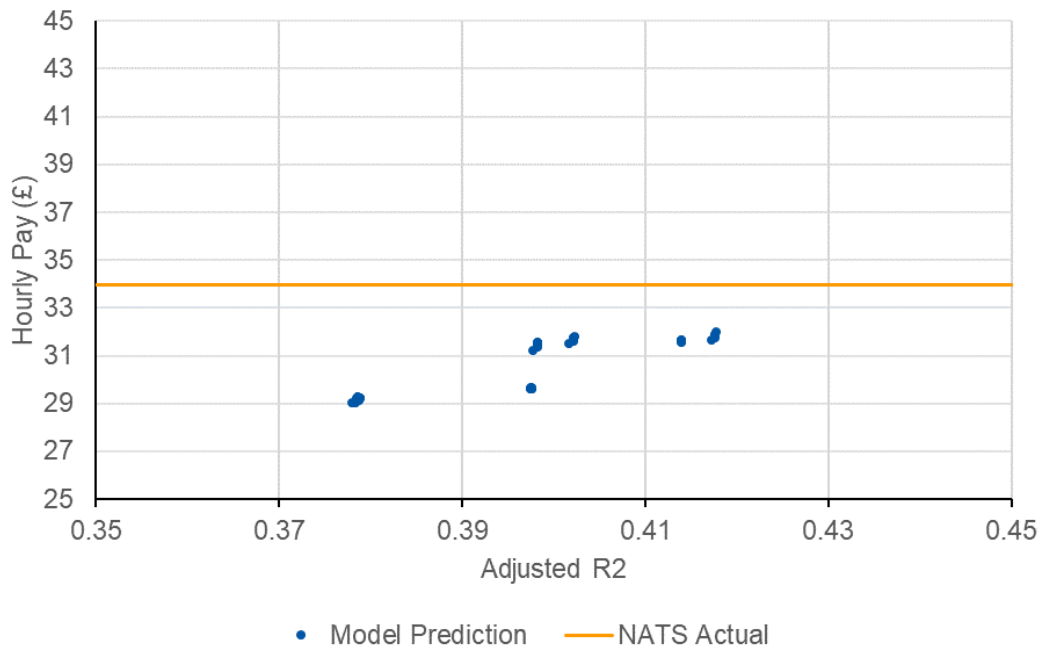
Figure 3.5: The Correlation Between Predicted Pay from Wage Equations and Adjusted R2 for ATCOs is 0.54



Source: NERA analysis

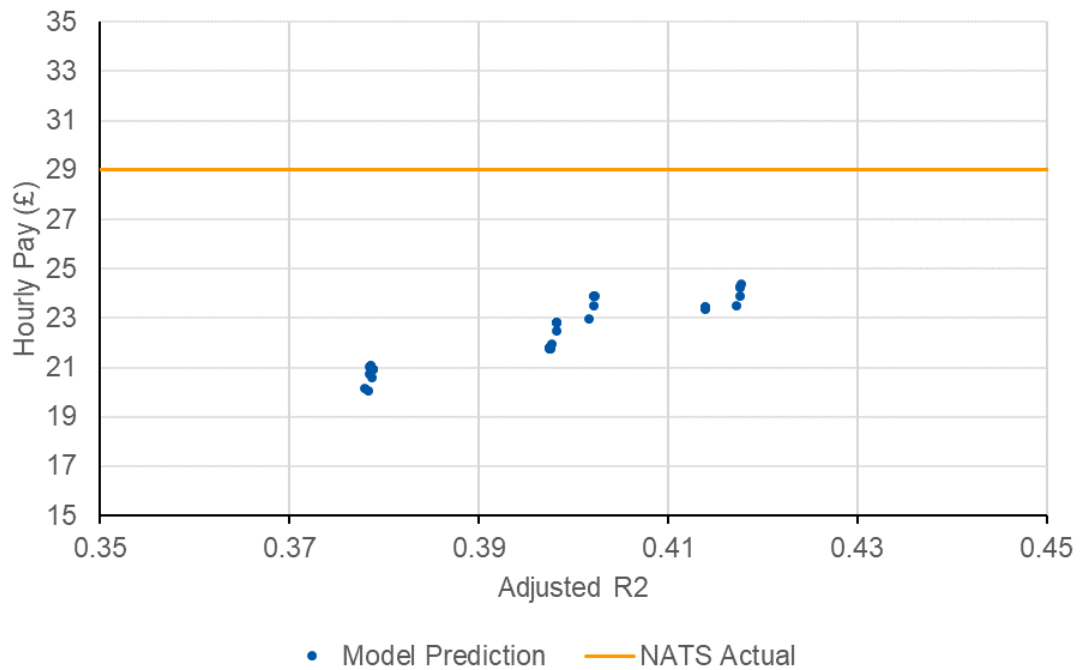
⁵⁷ See NERA (October 2021), Appendix F for an overview of the 37 models.

Figure 3.6: The Correlation Between Predicted Pay from Wage Equations and Adjusted R2 for ATCEs is 0.87



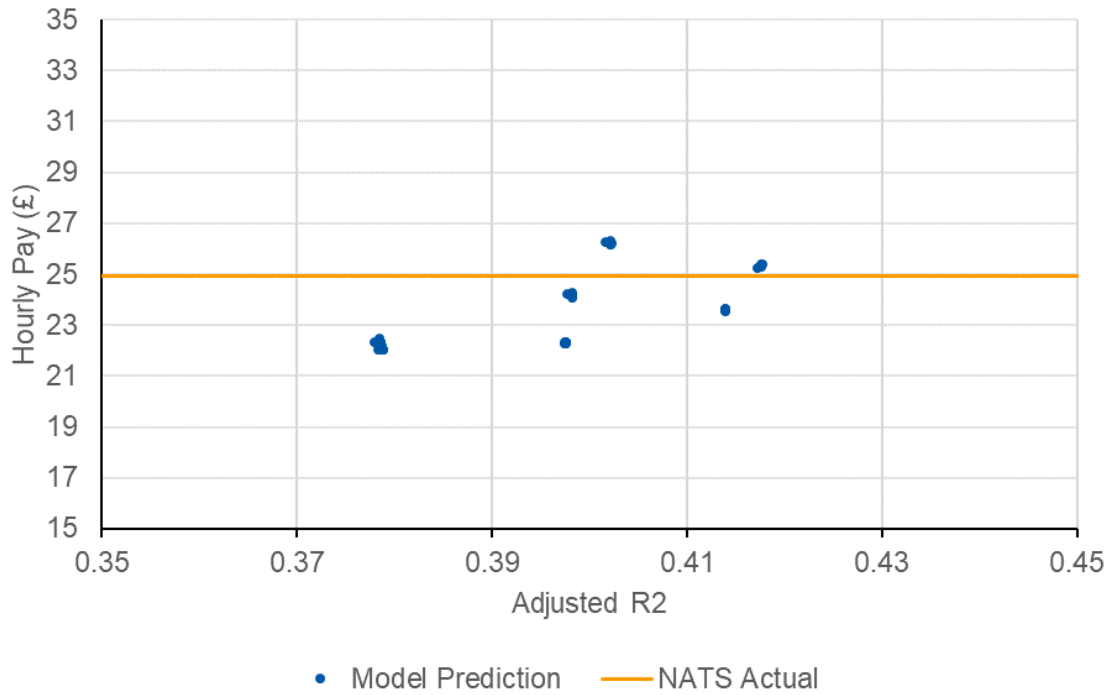
Source: NERA analysis

Figure 3.7: The Correlation Between Predicted Pay from Wage Equations and Adjusted R2 for ATSAs is 0.92



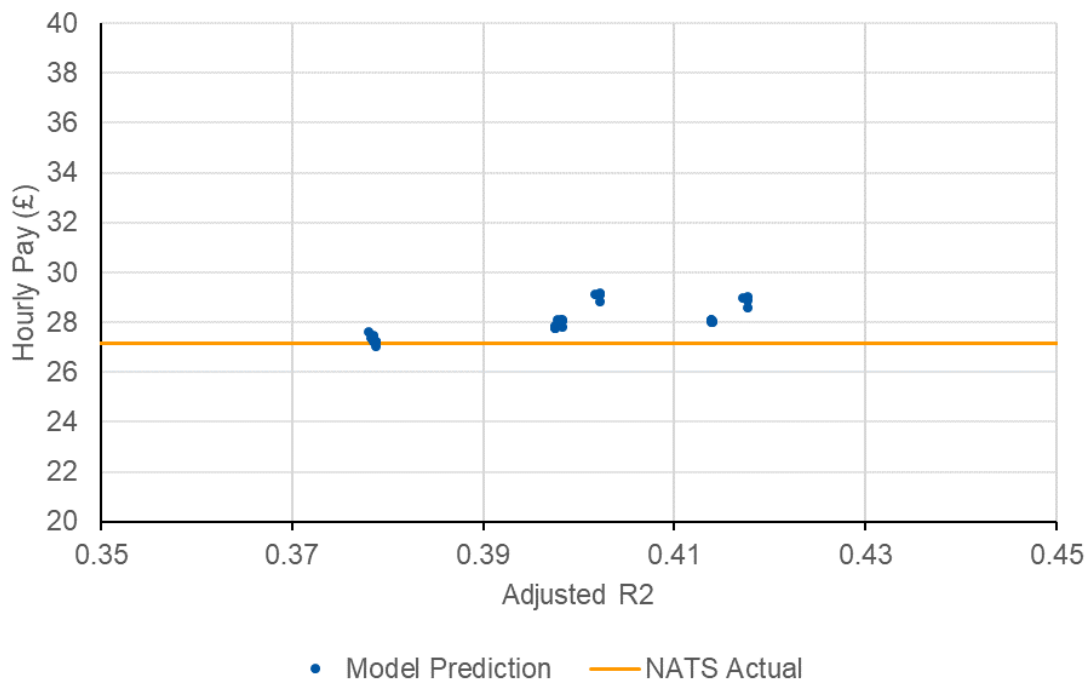
Source: NERA analysis

Figure 3.8: The Correlation Between Predicted Pay from Wage Equations and Adjusted R2 for MSGs is 0.65



Source: NERA analysis

Figure 3.9: The Correlation Between Predicted Pay from Wage Equations and Adjusted R2 for STARs is 0.72



Source: NERA analysis

For ATSA and ATCE pay, Steer's characterisation of the evidence we put forward as being exclusively "qualitative reasons" is misleading. As explained in Section 4.4 of our 2021 report, there is clear quantitative evidence to suggest that ATCE pay is in fact in line with market benchmarks, once we account for under-reporting of hourly pay (in the form of non-reporting of bonuses) in the public dataset that we use for benchmarking. As explained in Section 4.5.4 of our 2021 report, there is quantitative evidence from the medical profession that shift workers, like ATSAs, command a premium; this premium is not accounted for in the public dataset that we use for benchmarking.

Steer implicitly makes the erroneous assumption that any evidence to explain ATCE and ATSA pay that is not quantitative can simply be dismissed and warrants no consideration or engagement by Steer or the CAA.

In our 2021 report, we explained that quantitative approaches like wage equations cannot account for all the factors that determine pay. While our wage equations clearly explain a larger share of the variation in pay than models that simply account for occupation (about 40 per cent as compared to about 10 per cent, as illustrated by the above comparison of adjusted-R²), there is a substantial portion of that variation that they do not explain.

As explained in Section 4.5 of our 2021 report, there are always factors that "*influence wages but are not easily measured or are not reflected by the set of variables available in the LFS*".⁵⁸ An assessment of pay is incomplete if it only considers the predictions from a quantitative exercise and does not include a qualitative discussion of factors that are either inherently difficult to quantify or not quantifiable due to data limitations in that particular quantitative exercise.

In particular, there are a several such factors that are likely to lead the wage equation exercise to understate market benchmarks for ATCO and ATSA pay. These include:

- The illiquid structure of the market for NERL specialist staff, which requires NERL to offer sufficiently high pay to support retention, avoid industrial action, and ensure positive labour relations to maintain performance standards. We understand from NATS that this is particularly salient for both ATSAs and ATCEs.
 - For ATSAs, lower pay levels would create a risk of not being able to attract and retain staff, which could result in interruption to services such as Aeronautical Information Management and in some cases airspace closures. We understand from NATS that since 2018 the headcount in operational ATSA areas has dropped by circa 15 full-time employees, and that 21 per cent of the current operational ATSA pool are aged over 55 and 43 per cent aged over 50. This means there is a risk of skill deficiency in the near future, which NATS must avoid by recruiting, training, and retaining new ATSAs.
 - For ATCEs, NATS needs to retain engineers with the specific skills required to support legacy systems.
- The fact that the unions representing NERL staff have a particularly high degree of influence, due to the potential for significant disruption in the event of industrial action. We understand from NATS that there is an ongoing risk of industrial action, with 92 per

⁵⁸ NERA (October 2021), p. 34

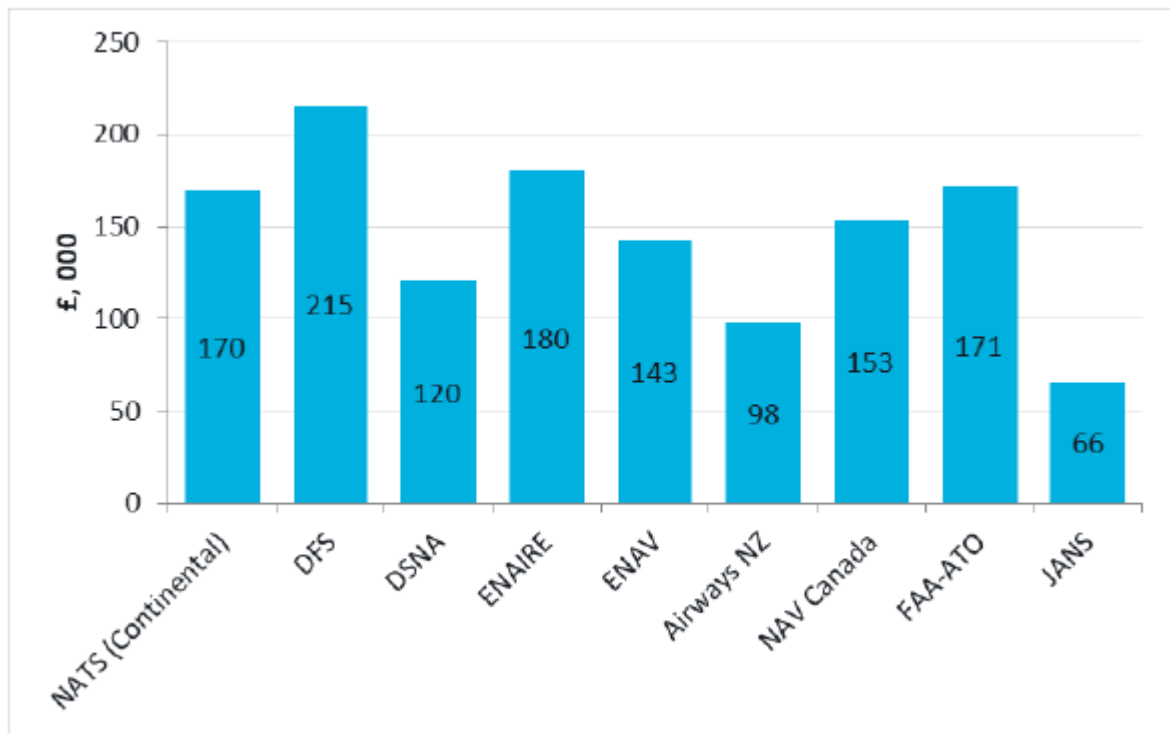
cent of Prospect members voting in favour of action short of strike during the 2022 pay negotiations. We also understand from the CAA's initial proposals that airlines are particularly concerned about avoiding any disruption to air traffic control services in NR23.⁵⁹

- Compensation for the additional responsibility arising from holding a safety-critical role. We understand from NATS that this is particularly salient for ATSAs, who are required for the opening and safe use of airspace.

3.4. Benchmarking to Other ANSPs

Steer's report includes a comparison of NERL's ATCO staff costs to the costs of ATCOs for other air navigation service providers (ANSPs). Steer's Figure 2.8, reproduced below as Figure 3.10, shows that NERL's ATCO staff costs (including social costs and pensions) are within the range of other ANSPs in 2019.

Figure 3.10: NERL's ATCO staff costs are comparable to other ANSPs



Source: Steer⁶⁰

In fact, when we apply the same upper quartile benchmarking that Steer does for its benchmarking against comparator occupations, NERL's ATCO staff cost is actually *4 per cent below* the upper quartile (i.e. NERL ATCO pay is 96 per cent of the upper quartile of ATCO pay across ANSPs), providing evidence that NERL is paying its ATCO staff in line with international benchmark rates. However, Steer does not consider this evidence when

⁵⁹ CAA (October 2022) CAP2394, p. 94 para 4.24

⁶⁰ Steer (September 2022), p. 21 Fig 2.8

proposing its top-down adjustments to NERL staff pay, instead focusing on its benchmarking relative to the wider UK economy and other occupations.

Further, there is evidence from Steer's report to suggest that the fact that NERL ATCO pay is towards the upper end of the range across comparable ANSPs is explained by productivity differences across ANSPs. Steer notes that "composite flight hours" can be used to assess the productivity of ATCOs; and that by this measure, NATS and the German ANSP DFS have the most productive ATCO staff.⁶¹ It is therefore not surprising that NATS and DFS pay is towards the upper end of the range of ANSP ATCO pay.⁶²

3.5. Conclusion: Current NERL Staff Pay is in Line with Benchmarks

The two most robust pieces of benchmarking evidence available are our wage equation analysis, which benchmarks NERL staff pay against pay for UK workers with similar characteristics, and Steer's ANSP comparison, which benchmarks NERL ATCO pay against ATCO pay in other countries. Both pieces of analysis show that NERL staff pay is in line with benchmarks.

The other two available pieces of analysis are not robust and should not be relied upon by the CAA. The comparison of historical growth rates of NERL pay to AWE Transport & Storage incorrectly assumes that the entire Transport & Storage sector is a good benchmark for NERL pay; it is also sensitive to the time horizon and does not account for NERL staff productivity growth over that horizon. The comparison to other UK occupations in 2019 does not account for the extent to which some degree of variation in pay across comparable occupations is to be expected and does not include any factors other than occupation that drive wages.

Overall, the evidence shows that NERL staff pay is not above market benchmark pay. Since NERL staff pay is not above market benchmark pay, the underlying premise of the CAA's low case (that NERL staff pay needs to be reduced in real terms to bring it in line with market benchmark pay) is incorrect. There is therefore no reason for the CAA to give further consideration to the low case.

⁶¹ Steer (September 2022), p. 11

⁶² Steer (September 2022), p. 21

4. The CAA's Base Case Undercompensates NERL Staff for Historical Real Pay Pressures that NERL's Pay Awards Spread Over Time

As discussed in Section 2.2, the CAA's base case appears to be linked to Steer's bottom-up approach. That approach limits real-terms pay growth for NERL's staff, on the grounds that:

- Pay increases above CPI are excessive given that the aviation industry is still recovering from the COVID-19 pandemic and inflation in the wider economy is running high; and
- NERL has not proposed any productivity improvements over NR23 (Steer notes that real-terms pay increases are typically associated with productivity improvements).

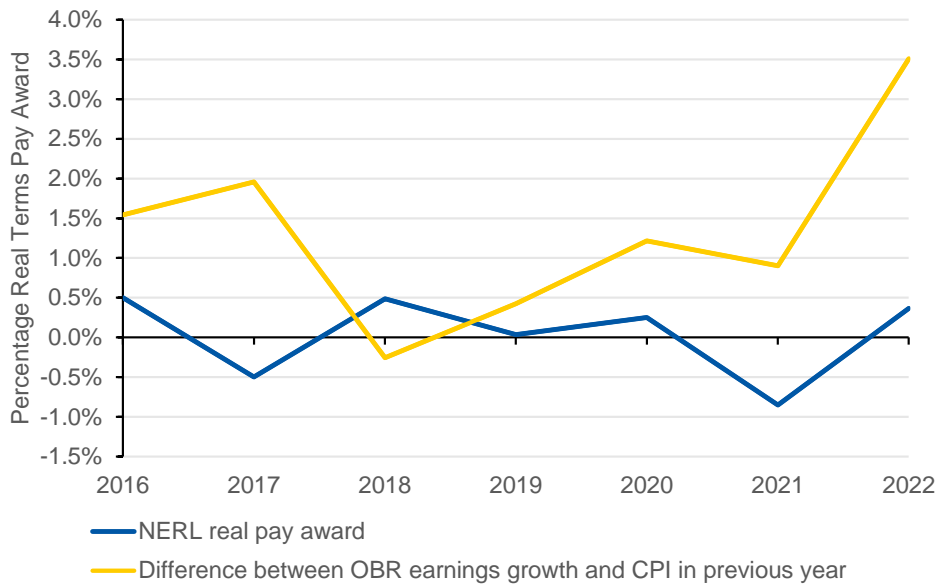
In making this proposal, Steer assumes that NERL seeks to reflect, in each year, the productivity improvements achieved in that year and economy-wide conditions in that year. If this were true, NERL's historical real-terms pay awards should vary from year to year in line with economy-wide pay growth.

In practice, NERL's historical real-terms pay awards differ from historical economy-wide pay growth. This is shown in Figure 4.1. NERL's pay awards (blue line) are less variable than economy-wide pay growth (yellow line). Over the past six years, NERL's pay awards have also been below economy-wide pay growth in all years except 2018.

We do not have data on year-on-year NERL staff productivity improvements. However, it is unlikely that the discrepancy between NERL's pay awards and economy-wide pay growth observed in Figure 4.1 could be driven by lower productivity growth among NERL staff than in the wider economy, given that the CAA reports that ATCO productivity improved by 1.75 per cent per year on average over 2009-2019.⁶³

⁶³ CAA (October 2022) CAP2394, p. 100

Figure 4.1: NERL Pay Awards are Less Variable than Economy-Wide Pay Growth and Have in Recent Years Been Below Economy-Wide Pay Growth



Source: NERA analysis of NERL and OBR data

It appears from the figure that NERL seeks to smooth the impact of economy-wide changes in real-terms pay over different years. It would make sense for NERL to adopt such an approach for the following reasons:

- First, demand for air traffic control services labour is likely to be less sensitive to economic cycles than demand for labour in the wider economy (e.g. demand for labour in the retail and hospitality or manufacturing sectors). In this respect, air traffic control is likely to be similar to networked utilities such as electricity distribution networks, and previous NERA analysis has shown that labour costs for electricity distribution networks do not move in line with economy-wide pay growth.⁶⁴
- Second, NERL’s labour force has particularly strong bargaining power. The negotiated grades are heavily unionized, and the lead-time for NERL to train replacement staff at the negotiated grades is relatively long (particularly for safety-critical roles such as ATCOs and ATSAs). NERL staff prefer predictable, CPI-linked pay growth. Imposing pay growth linked to economy-wide labour conditions would be challenging from a labour relations perspective and may expose NERL to the risk of industrial action.

NERL’s BP proposal is therefore consistent with the specific labour cost pressures it faces.

The CAA’s base case, in contrast, would undercompensate NERL staff for historical economy-wide pay growth and would expose NERL to the risk of industrial action.

⁶⁴ See for example our work on RPEs for the ENA ahead of RIIO-ED2, which shows that electricity distribution network general labour costs are negatively correlated with wider labour market indices. NERA (8 June 2021), Price Effects for the RIIO-ED2 Price Control Review, p. 41

5. Conclusion: the CAA Should Adopt NERL's Business Plan

The CAA's proposed adjustments to NERL's BP include a central base case and a low case that the CAA has put forward for further consideration.

The CAA's low case involves imposing a real-terms "haircut" on NERL staff pay to bring it in line with purported market benchmark pay. This approach therefore relies on the premise that NERL's staff are currently paid above market benchmarks. The above analysis demonstrates that this premise is false. The best available evidence on market benchmark pay (our wage equation analysis, and Steer's comparison of NERL ATCO pay against ATCO pay by other ANSPs) suggests that NERL pay is in line with benchmark pay. Therefore, no "haircut" is required and the CAA should not give further consideration to its low case.

The CAA's base case involves limiting real-terms pay increases for NERL staff over the early years of the NR23 price control and applying a real-terms pay cut in 2022, to align with the expected development of real wages in the broader economy. These proposals disregard the benefits that are incurred from NERL's current approach of smoothing variability in economy-wide real-terms pay growth.

NERL's smoothing approach limits uncertainty for both NERL's own staff and other stakeholders, such as airlines. Linking NERL staff pay to annual earnings growth would create uncertainty for airlines about the development of air traffic control costs over the NR23 price control. Changing the approach to setting pay awards also exposes NERL to the risk of industrial action or a deterioration in labour relations that may negatively affect performance. We understand that airlines are particularly eager to avoid any disruption to NERL services while the aviation industry is still recovering from the pandemic.

In the medium-to-long term, the CAA's proposed approach of reflecting year-on-year economy-wide changes would not result in cost savings relative to NERL's approach of smoothing the impact of those changes over multiple years. The apparent short-term reduction in costs over NR23 would likely be offset by relatively higher future costs in periods of robust economy-wide earnings growth.

In light of this, the temporary short-run cost savings that the CAA projects over NR23 from its proposed approach are unlikely to justify the downside risks (for example, of industrial action) associated with trying to change the structure of pay awards.

Adopting NERL's proposed approach offers more certainty to industry participants and reduces the risk of costly industrial action, while ensuring that NERL staff compensation does not exceed efficient market benchmark pay over the medium to long-term.

Appendix A. Our Replication of Steer’s Cost Estimates

Both the CAA and Steer report specific cost implications of the various adjustments they propose to NERL’s allowance for staff opex.

The CAA reports that its base case would involve a reduction in the staff opex allowance of around £10 million. This base case appears to be linked to Steer’s bottom-up analysis. Steer reports reductions in the staff opex allowance of either £7 million or £12 million in its bottom-up analysis, depending on the extent of staff pay reductions.

The CAA reports that its low case would involve a reduction in the staff opex allowance of £40 million. This appears to be linked to Steer’s top-down analysis. From this analysis, Steer reports reductions in the staff opex allowance of £18.8 million (for the “low % change” case based on benchmarking to AWE Transport & Storage) or £64.5 million (for the “high % change” case based on benchmarking to comparator occupations).

There remains some uncertainty about exactly how the CAA and Steer have derived these valuations. In this appendix, we attempt to replicate the reported valuations, with a view to identifying the set of assumptions that the CAA and Steer may have adopted in their own calculations. Although we do not have disaggregated employee data and so cannot expect to exactly replicate the valuations, we do have data on average pay for each negotiated grade (i.e. annual total pensionable pay divided by FTEs) that we can use to conduct an approximate replication.

We consider Steer’s top-down “high % change” case, Steer’s top-down “low % change” case, and Steer’s bottom-up analysis in turn in the following sub-sections.

A.1. Steer’s Top-Down Analysis: “High % Change” Case

We have attempted to approximately replicate Steer’s “high % change” case from its top-down analysis as a starting point, which generates a decrease in staff costs of £64.5m relative to NERL’s NR23 BP.⁶⁵

Steer summarises its “high % change” case as a 21 per cent reduction in ATCO salaries, a 34 per cent reduction in ATSA salaries, a 24 per cent decrease in ATCE salaries and a 9 per cent decrease in MSG salaries. It appears from its results that these salaries are reduced over a ten-year glide path. However, there is ambiguity over several assumptions. We do not find a set of assumptions that allow us to reproduce Steer’s figure of £64.5m relative to NERL’s BP for its “high % change” case. We do find a value of £68.4m based on the following assumptions:

- Steer applies percentage reductions of between 9-34 per cent (rather than 10-52 per cent);
- Steer assumes that, after 2027, NERL applies the same approach to setting NERL staff pay awards as it did in NR23 until the end of the 10-year period; and

⁶⁵ Steer (September 2022), Table 5, p. xiv

- Steer applies the percentage reduction to NERL forecast pay at the end of the 10-year glide period (i.e. ATCO salaries should be 21 per cent lower than NERL’s proposed salaries in 2032, rather than NERL’s current salaries);
- Steer linearly interpolates to determine the decrease in costs each year;
- Steer uses 2023 as the start period for this decrease.

A.2. Steer’s Top-Down Analysis: “Low % Change” Case

We have also attempted to replicate Steer’s “low % change” case from its top-down analysis. This case assumes a 5.4 per cent decrease in all salaries over the glide path (which we assume is 10 years), in line with the outperformance of NERL staff relative to the Transport & Storage sector from 2003 to 2019.⁶⁶

We follow the same method as used for our replication of Steer’s “high % change” case, with the difference being that, rather than using a differentiated staff salary decrease as proposed in the former, we apply a uniform staff salary decrease of 5.4 per cent. We use the same set of assumptions that produce our £68.4m result for Steer’s “high % change” case. We find a reduction in staff costs of £26.8m compared to NERL’s NR23 BP (versus a figure of £18.8m that Steer finds for its “low % change” scenario).

A.3. Steer’s Bottom-Up Analysis

In addition, we have attempted to replicate Steer’s “bottom-up” analysis for staff costs summarised in Table 6 of its report.⁶⁷

We have attempted to replicate this analysis using data provided by NERL. We use total staff cost data in 2020 prices. We adjust NERL’s BP proposal in a manner consistent with the adjustment described by Steer.

From this analysis, we find a decrease in staff costs of £5.3m and 9.6m relative to NERL’s NR23 BP for the “low % change” and “high % change” cases respectively (versus Steer’s results of £7.0m and £12.7m respectively).

⁶⁶ Steer (September 2022), Table 5, p. xiv

⁶⁷ Steer (September 2022), Table 6, p. xvii

Appendix B. Further Results on Sensitivity to Definition of Pay and Choice of Summary Statistic

This appendix sets out in detail the results of the sensitivity analysis described in Section 3.2.2.

Table B.1: The Difference Between NERL Pay and Benchmark Comparator Pay Varies Benchmark Summary Statistic (Gross Annual Pay)

NATS Staff Group	Upper Quartile	Upper Quintile	Maximum
ATCO	26%	20%	14%
ATSA	52%	51%	50%
ATCE	32%	30%	29%
MSG	10%	9%	8%
STAR	7%*	5%*	3%*

Note: The difference is reported as a % of the benchmark.

**STAR comparator group based on comparator SOCs in NERA report⁶⁸*

Source: NERA analysis of NERL and ASHE data⁶⁹

Table B.2: The Difference Between NERL Pay and Benchmark Comparator Pay Varies Benchmark Summary Statistic (Gross Hourly Pay)

NATS Staff Group	Upper Quartile	Upper Quintile	Maximum
ATCO	24%	22%	20%
ATSA	43%	40%	36%
ATCE	22%	19%	16%
MSG	3%	1%	0%
STAR	3%*	1%*	-1%*

Note: The difference is reported as a % of the benchmark.

**STAR comparator group based on comparator SOCs in NERA report⁷⁰*

Source: NERA analysis of NERL and ASHE data⁷¹

⁶⁸ NERA (October 2021), Table 3.2, p. 11.

⁶⁹ Data received from NATS.

⁷⁰ NERA (October 2021), Table 3.2, p. 11.

⁷¹ Data received from NATS.

Table B.3: The Difference Between NERL Pay and Benchmark Comparator Pay Varies Benchmark Summary Statistic (Hourly Pay Excluding Overtime)

NATS Staff Group	Upper Quartile	Upper Quintile	Maximum
ATCO	20%	19%	17%
ATSA	40%	37%	33%
ATCE	19%	17%	14%
MSG	3%	1%	0%
STAR	1%*	0%*	-2%*

Note: The difference is reported as a % of the benchmark.

**STAR comparator group based on comparator SOCs in NERA report⁷²*

Source: NERA analysis of NERL and ASHE data⁷³

Table B.4: The Difference Between NERL Pay and Benchmark Comparator Pay Varies Benchmark Summary Statistic (Annual Basic Pay)

NATS Staff Group	Upper Quartile	Upper Quintile	Maximum
ATCO	24%	22%	19%
ATSA	57%	51%	42%
ATCE	29%	28%	27%
MSG	14%	13%	13%
STAR	4%*	3%*	1%*

Note: The difference is reported as a % of the benchmark.

**STAR comparator group based on comparator SOCs in NERA report⁷⁴*

Source: NERA analysis of NERL and ASHE data⁷⁵

⁷² NERA (October 2021), Table 3.2, p. 11.

⁷³ Data received from NATS.

⁷⁴ NERA (October 2021), Table 3.2, p. 11.

⁷⁵ Data received from NATS.

Appendix C. Results from Wage Equations

Table C.5 reports the pay values used to construct Figure 3.4.

Table C.5: Difference Between NERL Actual Pay, Predicted Pay from Wage Equations with Only SOC and Time, and Predicted Pay from Wage Equations with More Determinants

	ATCO	ATCE	ATSA	STAR	MSG
NERL Actual Pay	49.04	33.97	29.03	27.14	24.91
<i>Only SOC and time</i>					
Minimum Predicted Pay	38.15	20.71	13.14	21.74	16.76
Maximum Predicted Pay	41.84	22.72	14.45	23.79	18.46
<i>SOC, time, and other determinants (education, location, etc)</i>					
Minimum Predicted Pay	36.86	29.03	20.03	27.02	22.02
Maximum Predicted Pay	51.81	31.99	24.36	29.16	26.33

Note: The pay variable is hourly total pay.

Source: NERA analysis

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