# APPENDIX D: RESULTS OF REGRESSION ANALYSES

## Appendix of the 2024 Trucking Lives 'Views from the Cab' Report

### REGRESSION ANALYSIS

Regression analysis is a set of statistical tools that help quantify how the average of one variable systematically varies according to the levels of another variable[1]. The former variable is referred to as the dependant variable or outcome variable, and the latter, as predictor variable/s or explanatory variable/s.

The Trucking Lives survey uses two main types of regression analyses – Linear and Logistic regressions – to better understand significant associations between current drivers' personal and job characteristics (predictor variables) and outcomes related to job satisfaction scores, health and wellbeing, experiences of discrimination and income disparities (dependant/ outcome variables). A summary of the regressions analyses that inform the Trucking Lives survey report is provided below.

| | TYPE OF REGRESSION | DEPENDANT VARIABLE/ OUTCOME VARIABLE | PREDICTOR VARIABLES |
|---|---|---|---|
| 1. | **Generalised Linear Regression Model** | 1. Job Satisfaction Scores* related to<br>• Pay<br>• Hours of work<br>• Efficiency of management<br>• The work itself<br>• Training opportunities<br>2. Impacts of HGV driving* on<br>• Mental health<br>• Physical health<br>• Relations with children<br>• Relations with partner<br>• Wider social relations<br>*Likert scale data transformed to 0-100 scores | Socio-demographic characteristics: Age ranges, ethnicity, gender, presence of caring responsibilities<br>AND<br>Job characteristics: Years of experience, contract type, employment type, size of company, class of HGV driven, hours of work, number of nights away from home. |
| 2. | **Binary Logistic Regressions** | a. Discrimination (Q: As an HGV driver, did you experience discrimination? Yes/No answer)<br>b. Quitting HGV Driving (Q: Have you considered quitting HGV driving in the last 12 months? Yes/No answer)<br>c. What explains income disparities in HGV driving? (Data divided into two groups with median annual salary of HGV drivers in the UK as reference: drivers earning =/< £29,999 and drivers earning =/> £30,000) | Socio-demographic characteristics: Age ranges, ethnicity, gender, presence of caring responsibilities<br>AND<br>Job characteristics: Years of experience, contract type, employment type, size of company, class of HGV driven, hours of work, number of nights away from home. |

Note: Regression results for some variable categories with sample size equal to or less than 10 have not been included in the discussions even if statistically significant.

# 1. RESULTS OF THE LINEAR REGRESSION MODELS RELATING TO JOB SATISFACTION SCORES OF CURRENT DRIVERS

We ran multivariable linear regressions to explore the relationship between drivers' job and socio-demographic characteristics with self-reported scores on 'Job Satisfaction'. In our survey, 'Job Satisfaction' was itself broken down into 14 variables based on a validated question from the Skills and Employment Survey 2017[2]. Participants had to provide their responses to the question 'How satisfied or dissatisfied are you with the below aspects of your current job' using a Likert scale from 1 to 7, with 1 being 'completely dissatisfied' and 7 being 'completely satisfied'.

The regression analyses aimed to find out if drivers from certain socio-demographic backgrounds and with particular job characteristics would be more (or less) satisfied with respect to Pay, Hours Worked, Efficiency of Management, The Work itself and Training Opportunities.

In order to run a linear regression analysis, we first had to convert Likert scale data into continuous data. We did this by transforming the scale data into a 0 to 100 score using 'min-max transformation'. We used the below formula to transform the Likert scale into a 0-100 score:

$$\widetilde{x}\min = \frac{x - x\min}{x\max - x\min} \times (u - l) + l$$

On converting the 1-7 Likert scale data into 0-100, the transformed values were 1 = 0, 2 =16.67, 3 =33.33, 4=50, 5=66.67, 6=83.33 and 7=100.

We transformed these scores for each of the above mentioned aspects of job satisfaction that we were interested in running regressions analyses on. As the first step, we ran simple/univariable linear regressions checking each of the socio-demographic and job characteristics (see summary table above), i.e. predictor variables, against the outcome variable to test for statistical significance. A multivariable linear regression model was then tested with those predictor variables which showed statistical significance ($p<0.05$) in the univariable analysis. Below are the results of the multivariable regression analysis for the select aspects of job satisfaction.

## SATISFACTION SCORES RELATED TO PAY

| PREDICTOR VARIABLES | N | ADJUSTED β | 95% WALD CONFIDENCE INTERVAL LOWER | UPPER | SIG. |
|---|---|---|---|---|---|
| **WHITE ETHNIC SUB-GROUP** | | | | | |
| Any other white background | 84 | -4.98 | -10.31 | 0.33 | 0.06 |
| Roma | n<5 | -2.47 | -29.43 | 24.47 | 0.85 |
| Irish | 30 | -4.75 | -13.34 | 3.82 | 0.27 |
| English, Welsh, Scottish, Northern Irish or British | 1589 | 0 | . | . | . |
| **EMPLOYMENT TYPE** | | | | | |
| Other | 20 | -1.9 | -12.55 | 8.75 | 0.72 |
| Self-employed with your own business | 72 | -2.54 | -11.45 | 6.36 | 0.57 |
| **Contracted through an agency to multiple companies** | **64** | **-8.52** | **-15.37** | **-1.67** | **0.015** |
| Contracted through an agency to a single company | 59 | -1.16 | -8.07 | 5.75 | 0.74 |
| Directly employed by a company | 1491 | 0 | . | | . |
| **CONTRACT TYPE** | | | | | |
| Other (Self-employed) | 63 | -1.75 | -11.26 | 7.74 | 0.71 |
| Zero-Hours | 86 | 1.51 | -4.33 | 7.36 | 0.61 |
| Temp to Perm | 10 | 12.84 | -2.26 | 27.96 | 0.09 |
| Temporary | 39 | -4.52 | -13.05 | 4.01 | 0.29 |
| Permanent | 1508 | 0 | . | . | . |
| **GENDER** | | | | | |
| Other (Non-Binary, 'Prefer not to say', 'Other') | 6 | -1.73 | -20.88 | 17.40 | 0.85 |
| **Female** | **226** | **4.73** | **1.35** | **8.11** | **0.006** |
| Male | 1474 | 0 | . | . | . |
| **CARING RESPONSIBILITIES** | | | | | |
| Prefer not to say | 64 | -3.53 | -9.57 | 2.49 | 0.25 |
| **With caring responsibilities** | **566** | **-3.11** | **-5.56** | **-0.67** | **0.012** |
| No caring responsibilities | 1076 | 0 | . | . | . |
| **Nights Away From Home** | | | | | |
| | **1706** | **0.43** | **0.12** | **0.74** | **0.006** |

Discussion: A multivariable generalised linear regression was performed to ascertain the relationship of drivers' socio-demographic and job characteristics on job satisfaction scores with respect to their pay in HGV driving work. The model shows that female drivers are more likely to report higher satisfaction scores with regards to pay compared to male drivers ($\beta = 4.73$). The model also shows that satisfaction levels around pay increase marginally for every one night spent away from home ($\beta=0.43$).

However, drivers with caring responsibilities tend to be less satisfied regarding their pay compared to drivers without caring responsibilities ($\beta = -3.11$). With respect to job characteristics, the model shows that drivers contracted to multiple haulage companies through recruitment agencies are also likely to be less satisfied about their pay compared with drivers directly employed to a single company ($\beta = 8.52$).

## SATISFACTION SCORES RELATED TO HOURS WORKED

| PREDICTOR VARIABLES | N | ADJUSTED β | 95% WALD CONFIDENCE INTERVAL LOWER | UPPER | SIG. |
|---|---|---|---|---|---|
| **GENDER** | | | | | |
| Other | 6 | -13.15 | -34.22 | 7.90 | 0.22 |
| **Female** | **226** | **6.20** | **2.44** | **9.95** | **<.001** |
| Male | 1474 | 0 | . | . | . |
| **AGE RANGES** | | | | | |
| 50+ | 786 | -0.93 | -5.06 | 3.18 | 0.65 |
| 30 – 49 | 721 | -2.15 | -6.34 | 2.04 | 0.31 |
| 18-29 | 199 | 0 | . | . | . |
| **CARING RESPONSIBILITIES** | | | | | |
| Prefer not to say | 64 | -1.19 | -7.85 | 5.47 | 0.72 |
| **With caring responsibilities** | **566** | **-6.06** | **-8.93** | **-3.20** | **<.001** |
| No caring responsibilities | 1706 | 0 | . | . | . |
| **WHITE ETHNIC SUB-GROUP** | | | | | |
| **Any other white background** | **84** | **-7.90** | **-13.81** | **-2.00** | **0.009** |
| Roma | n<5 | 15.78 | -13.96 | 45.52 | 0.29 |
| **Irish** | **30** | **-10.33** | **-19.81** | **-0.84** | **0.03** |
| English, Welsh, Scottish, Northern Irish or British | 1589 | 0 | . | . | . |
| **HOURS OF WORK** | | | | | |
| **Part-time** | **94** | **8.86** | **2.91** | **14.82** | **0.004** |
| Full-time | 1612 | 0 | . | . | . |
| **CONTRACT TYPE** | | | | | |
| **Other (Self-employed)** | **63** | **7.92** | **1.25** | **14.59** | **0.02** |
| **Zero Hours** | **86** | **-8.83** | **-14.88** | **-2.79** | **0.004** |
| Temp to Perm | 10 | 18.08 | 1.69 | 34.47 | 0.03 |
| Temporary | 39 | -5.10 | -13.65 | 3.44 | 0.24 |
| Permanent | 1508 | 0 | . | . | . |

Discussion: The model shows that female drivers are more likely to report higher satisfaction scores relating to 'Hours of Work' compared to male drivers (β= 6.20). Self-employed drivers too are likely to be more satisfied with their hours of work (β= 7.92). The model also shows that drivers who work part-time hours are more likely to be satisfied about their working hours compared to drivers who work full-time hours (β= 8.8).

Satisfaction levels around hours worked tend to decrease amongst drivers with caring responsibilities when compared to drivers without caring responsibilities (β= -6.06). The model also shows that Irish drivers and drivers identifying as belonging to 'Any other white ethnicity' (this includes drivers from Eastern European countries) are likely to be less satisfied with the hours worked in their HGV driving jobs (β = -10.33 and -7.90 respectively). In relation to job characteristics, drivers on zero hour contracts are likely to be less satisfied with their working hours compared to those on permanent contracts by approximately 9 points (β= -8.83).

## SATISFACTION SCORES RELATED TO EFFICIENCY OF MANAGEMENT

| PREDICTOR VARIABLES | N | ADJUSTED β | 95% WALD CONFIDENCE INTERVAL LOWER | UPPER | SIG. |
|---|---|---|---|---|---|
| **CARING RESPONSIBILITIES** | | | | | |
| Prefer not to say | 67 | 3.44 | -3.35 | 10.24 | 0.32 |
| **With caring responsibilities** | **589** | **-3.75** | **-6.59** | **-0.90** | **0.01** |
| No caring responsibilities | 1100 | 0 | . | . | . |
| **GENDER** | | | | | |
| Other | 10 | -11.58 | -28.75 | 5.59 | 0.18 |
| **Female** | **229** | **6.45** | **2.52** | **10.37** | **0.001** |
| Male | 1517 | 0 | . | . | . |
| **CONTRACT TYPE** | | | | | |
| **Other (Self-employed)** | **64** | **13.43** | **2.51** | **24.35** | **0.016** |
| Zero Hours | 93 | 0.64 | -5.95 | 7.24 | 0.84 |
| Temp to Perm | 14 | 11.7 | -3.21 | 26.61 | 0.12 |
| Temporary | 46 | -0.91 | -10.26 | 8.43 | 0.84 |
| Permanent | 1539 | 0 | . | . | . |
| **EMPLOYMENT TYPE** | | | | | |
| Other | 21 | -2.82 | -14.88 | 9.24 | 0.64 |
| Self-employed with your own business | 73 | -0.52 | -11.29 | 10.24 | 0.92 |
| Contracted through an agency to multiple companies | 71 | -4.64 | -12.32 | 3.03 | 0.23 |
| Contracted through an agency to a single company | 69 | -1.29 | -8.91 | 6.32 | 0.74 |
| Directly employed by a company | 1522 | 0 | . | . | . |
| **COMPANY SIZE** | | | | | |
| I'm not sure | 37 | -16.54 | -31.32 | -1.77 | 0.02 |
| **Extra Large (251+ vehicles)** | **544** | **-25.30** | **-37.47** | **-13.14** | **<.001** |
| **Large (101-250 vehicles)** | **259** | **-19.82** | **-32.18** | **-7.47** | **0.002** |
| **Medium (31-100 vehicles)** | **376** | **-16.08** | **-28.23** | **-3.93** | **0.009** |
| Small (2-30 vehicles) | 513 | -4.68 | -16.53 | 7.16 | 0.43 |
| Owner Operator | 27 | 0 | . | . | . |
| **Nights Away From Home** | | | | | |
| | **1756** | **0.67** | **0.31** | **1.03** | **<.001** |
| **Years of experience** | | | | | |
| | **1756** | **-0.15** | **-0.25** | **-0.04** | **0.005** |

Discussion: The multiple linear regression model shows that female drivers are more likely to report better satisfaction scores with respect to the perceived efficiency of management than male drivers (β= 6.45). Satisfaction scores related to the perceived efficiency of management tends to slightly increase (by 0.67 points) for every additional night spent away from home. Unsurprisingly, drivers who are self-employed tend to be more satisfied with this aspect of their jobs compared to those who are permanent employees of a company (β= 13.43).

The model suggests that drivers with caring responsibilities are likely to be less satisfied with the perceived efficiency of management of their employer compared to those without caring responsibilities (β= -3.75). The model shows that drivers tend to become increasingly dissatisfied with management efficiency as the size of the employer increases, with drivers in extra-large companies likely to report 25 points less satisfaction compared to owner operators (β= -25.30). The regression model also points to levels of satisfaction related to the aspect of efficiency of management likely to decrease marginally with every additional year of experience gained by a driver (β= -0.15).

## SATISFACTION SCORES RELATED TO TRAINING OPPORTUNITIES RECEIVED

| PREDICTOR VARIABLES | N | ADJUSTED β | 95% WALD CONFIDENCE INTERVAL LOWER | UPPER | SIG. |
|---|---|---|---|---|---|
| **AGE RANGES** | | | | | |
| 50+ | 786 | -2.97 | -7.22 | 1.27 | 0.17 |
| **30-49** | **721** | **-4.54** | **-8.87** | **-0.22** | **0.04** |
| 18-29 | 199 | 0 | . | . | . |
| **WHITE ETHNIC SUB-GROUP** | | | | | |
| **Any other white background** | **84** | **-6.87** | **-13.01** | **-0.74** | **0.028** |
| Roma | n<5 | 4.97 | -25.69 | 35.64 | 0.75 |
| Irish | 30 | -5.45 | -15.22 | 4.31 | 0.27 |
| English, Welsh, Scottish, Northern Irish or British | 1589 | 0 | . | . | . |
| **GENDER** | | | | | |
| Other (Non-Binary, 'Prefer not to say', 'Other') | 6 | -31.86 | -53.65 | -10.07 | 0.004 |
| **Female** | **226** | **7.11** | **3.25** | **10.97** | **<.001** |
| Male | 1474 | 0 | . | . | . |
| **CONTRACT TYPE** | | | | | |
| Other (Self-employed) | 63 | 10.57 | -0.22 | 21.37 | 0.055 |
| **Zero-Hours** | **86** | **-10.60** | **-17.24** | **-3.96** | **0.002** |
| Temp to Perm | 10 | 6.08 | -11.11 | 23.28 | 0.48 |
| **Temporary** | **39** | **-11.27** | **-20.98** | **-1.55** | **0.02** |
| Permanent | 1508 | 0 | . | . | . |
| **EMPLOYMENT TYPE** | | | | | |
| Other | 20 | -2.96 | -15.07 | 9.14 | 0.63 |
| Self-employed with your own business | 72 | 0.53 | -9.59 | 10.67 | 0.91 |
| **Contracted through an agency to multiple companies** | **64** | **-11.30** | **-19.08** | **-3.52** | **0.004** |
| Contracted through an agency to a single company | 59 | -3.31 | -11.17 | 4.54 | 0.40 |
| Directly employed by a company | 1491 | 0 | . | . | . |
| **CARING RESPONSIBILITIES** | | | | | |
| Prefer not to say | 64 | 1.18 | -5.70 | 8.06 | 0.73 |
| **With caring responsibilities** | **566** | **-4.55** | **-7.50** | **-1.60** | **0.003** |
| No caring responsibilities | 1076 | 0 | . | . | . |

Discussion: A multiple linear regression model was performed to explore the association between drivers' socio-demographic and job characteristics (predictor variables) and their satisfaction scores related to training received on the job (dependant variable). Female drivers are significantly more likely to be satisfied about training opportunities compared to male drivers (β= 7.11). With respect to socio-demographic characteristics, the model shows that drivers in the ages 30 to 49 tend to be less satisfied about opportunities received for training compared to drivers who are between 18 to 29 (β= -4.54). Drivers identifying as belonging to 'Any other white background' (includes drivers from Eastern Europe) also tend to report less satisfaction regarding training opportunities compared to drivers with ethnic backgrounds as 'English, Welsh, Scottish, Northern Irish or British' (β= -6.87). Similarly, drivers with caring responsibilities are also likely to be less satisfied about the training opportunities available to them compared to drivers without caring responsibilities (β = -4.55).

In relation to job characteristics, we see some insightful findings. Drivers on temporary and zero hour contracts tend to be significantly less satisfied with in relation to training opportunities received compared to drivers with permanent contracts (β = -11.27 and -10.60 respectively). Similar findings emerge from the model with drivers contracted through 'an agency to multiple haulage companies' being more likely to report lesser satisfaction compared to drivers directly employed by a company (β= -11.30).

## SATISFACTION SCORES RELATED TO THE WORK ITSELF

| PREDICTOR VARIABLES | N | ADJUSTED β | 95% WALD CONFIDENCE INTERVAL LOWER | UPPER | SIG. |
|---|---|---|---|---|---|
| **CARING RESPONSIBILITIES** | | | | | |
| Prefer not to say | 64 | -1.45 | -6.55 | 3.65 | 0.57 |
| **With caring responsibilities** | **566** | **-2.46** | **-4.53** | **-0.39** | **0.02** |
| No caring responsibilities | 1076 | 0 | . | . | . |
| **WHITE ETHNIC SUB-GROUP** | | | | | |
| Any other white background | 84 | -4.39 | -8.89 | 0.11 | 0.05 |
| Roma | n<5 | 8.11 | -14.68 | 30.90 | 0.48 |
| Irish | 30 | -4.19 | -11.46 | 3.07 | 0.25 |
| English, Welsh, Scottish, Northern Irish or British | 1589 | 0 | . | . | . |
| **EMPLOYMENT TYPE** | | | | | |
| Other | 20 | -2.80 | -11.82 | 6.20 | 0.54 |
| Self-employed with your own business | 72 | -3.58 | -11.12 | 3.95 | 0.35 |
| **Contracted through an agency to multiple companies** | **64** | **-7.90** | **-13.74** | **-2.07** | **0.008** |
| Contracted through an agency to a single company | 59 | -4.58 | -10.43 | 1.27 | 0.12 |
| Directly employed by a company | 1491 | 0 | . | . | . |
| **HOURS OF WORK** | | | | | |
| **Part-time** | **94** | **7.56** | **2.93** | **12.20** | **0.001** |
| Full-time | 1612 | 0 | . | . | . |
| **GENDER** | | | | | |
| Other (Non-Binary, 'Prefer not to say', 'Other') | 6 | -22.48 | -38.67 | -6.28 | 0.007 |
| **Female** | **226** | **4.51** | **1.64** | **7.38** | **0.002** |
| Male | 1474 | 0 | . | . | . |
| **CONTRACT TYPE** | | | | | |
| Other (Self-employed) | 63 | 7.48 | -0.59 | 15.56 | 0.06 |
| Zero-Hours | 86 | -0.84 | -5.98 | 4.28 | 0.74 |
| Temp to Perm | 10 | 11.32 | -1.49 | 24.13 | 0.08 |
| Temporary | 39 | -4.57 | -11.88 | 2.74 | 0.22 |
| Permanent | 1508 | 0 | . | . | . |
| **NIGHTS AWAY FROM HOME** | | | | | |
| | 1706 | 0.29 | 0.02 | 0.55 | 0.031 |

Discussion: A generalised multiple regression model was performed with satisfaction scores related to 'The Work Itself' as the dependant variable and respondents' socio-demographic and job characteristics as predictor variables. Female drivers are likely to report higher satisfaction scores about the work of driving compared to male drivers (β= 4.51). The model also shows that part-time drivers are likely to report higher satisfaction scores about the 'work itself' compared to full-time drivers (β= 7.56). Finally, the model indicates that there may be a marginal improvement in the satisfaction scores related to the 'work itself' for every one night spent by a driver away from home (β= 0.29).

The model showed that drivers with caring responsibilities are likely to report negatively about the work of truck driving compared to drivers without caring responsibilities (β = -2.46). With respect to job characteristics, drivers contracted through an agency to multiple companies are likely to be less satisfied with the overall experience of the 'work itself' compared to drivers who are employed directly by a company (β= -7.90).

# 2. GENERALISED LINEAR REGRESSION ANALYSES OF THE IMPACT OF HGV DRIVING ON THE HEALTH AND WELLBEING OF CURRENT HGV DRIVERS

Generalised linear regression models were performed to explore the association of socio-demographic and job characteristics (predictor variables) with drivers' self-reported status of health and social wellbeing (dependant variable). The question that was posed in the survey had Likert scale answer options from 1 to 5 with 1 being 'negatively' and 5 being 'Positively'. The scale data was converted into continuous data by transforming them into a 0 to 100 score using the same method followed to transform Job Satisfaction scores (discussed in the previous section). The transformed scores have been taken as the dependant variable for each of the indicators of health and social well-being. Below are the results of the multivariable regression models and discussion for the various indicators of the health and social wellbeing.

| PREDICTOR VARIABLES | N | ADJUSTED β | 95% WALD CONFIDENCE INTERVAL LOWER | UPPER | SIG. |
|---|---|---|---|---|---|
| **AGE GROUPS** | | | | | |
| 50+ | 776 | 2.72 | -2.58 | 8.03 | 0.31 |
| 30-49 | 747 | -2.17 | -6.66 | 2.32 | 0.34 |
| 18-29 | 202 | 0 | . | . | . |
| **CLASS OF HGV** | | | | | |
| Other | 21 | 4.43 | -7.63 | 16.50 | 0.47 |
| 7.5 ton | 9 | 18.83 | 0.61 | 37.06 | 0.04 |
| **Rigid** | **288** | **3.66** | **0.11** | **7.22** | **0.04** |
| Artic | 1407 | 0 | . | . | . |
| **GENDER** | | | | | |
| Other (Non-Binary, 'Prefer not to say', 'Other') | 10 | -7.84 | -25.26 | 9.57 | 0.37 |
| **Female** | **224** | **6.47** | **2.46** | **10.48** | **0.002** |
| Male | 1491 | 0 | . | . | . |
| **CARING RESPONSIBILITIES** | | | | | |
| Prefer not to say | 66 | -8.81 | -15.74 | -1.88 | 0.01 |
| **With caring responsibilities** | **582** | **-4.56** | **-7.57** | **-1.56** | **0.003** |
| No caring responsibilities | 1077 | 0 | . | . | . |
| **HOURS OF WORK** | | | | | |
| **Part-time** | **100** | **12.09** | **6.43** | **17.74** | **<.001** |
| Full-time | 1625 | 0 | . | . | . |
| **YEARS OF EXPERIENCE** | | | | | |
| | **1725** | **-0.26** | **-0.41** | **-0.12** | **<.001** |

Discussion: The model shows that female drivers tend to report better mental health scores as truck drivers compared to male drivers (β = 6.47). With respect to job characteristics, drivers driving 'Rigid' vehicles are likely to report better mental health scores than drivers driving 'Artic' vehicles (β = 3.67). Similarly, drivers working part-time hours are likely to report better impact of their job on their mental health compared to drivers working full-time (β = 12.09).

Drivers with caring responsibilities are likely to report lower scores about the impact of HGV driving on their mental health compared to drivers without caring responsibilities (β = -4.56). The model also shows the likelihood of drivers' reported mental health scores falling for every one year increase in their experience as an HGV driver (β = -0.26).

## IMPACT OF HGV DRIVING ON PHYSICAL HEALTH

| PREDICTOR VARIABLES | N | ADJUSTED β | 95% WALD CONFIDENCE INTERVAL LOWER | UPPER | SIG. |
|---|---|---|---|---|---|
| **CARING RESPONSIBILITIES** | | | | | |
| Prefer not to say | 65 | -3.13 | -10.57 | 4.31 | 0.41 |
| **With caring responsibilities** | **587** | **-4.91** | **-7.89** | **-1.92** | **0.001** |
| No caring responsibilities | 1090 | 0 | . | . | . |
| **ETHNICITY** | | | | | |
| Other ethnic group (Arab; Any other ethnic group) | 14 | 6.38 | -9.85 | 22.63 | 0.44 |
| Black, Black British, Caribbean or African (Caribbean; African; Any other Black, Black British, or Caribbean background) | 8 | 27.44 | 6.39 | 48.49 | 0.011 |
| **Asian or Asian British (Indian; Pakistani; Bangladeshi; Chinese; Any other Asian background)** | **12** | **20.06** | **3.03** | **37.09** | **0.021** |
| Mixed or multiple ethnic groups (White and Black Caribbean; White and Black African; White and Asian; Any other Mixed or multiple ethnic background) | 14 | 4.25 | -11.38 | 19.89 | 0.59 |
| White (English, Welsh, Scottish, Northern Irish or British; Irish; Gypsy or Irish Traveller; Roma; Any other White background) | 1694 | 0 | . | . | . |
| **GENDER** | | | | | |
| Other (Non-Binary, 'Prefer not to say', 'Other') | 10 | -9.49 | -28.66 | 9.67 | 0.33 |
| **Female** | **228** | **10.6** | **6.44** | **14.76** | **<.001** |
| Male | 1504 | 0 | . | . | . |
| **CONTRACT TYPE** | | | | | |
| Other (Self-employed) | 64 | -1.157 | -8.56 | 6.25 | 0.76 |
| **Zero-Hours** | **93** | **-9.76** | **-16.02** | **-3.50** | **0.002** |
| Temp to Perm | 14 | 0.73 | -15.15 | 16.61 | 0.92 |
| Temporary | 46 | -5.00 | -13.87 | 3.85 | 0.26 |
| Permanent | 1525 | 0 | . | . | . |

Discussion: A multivariable generalised linear regression was performed with the scores given by drivers about the impact of HGV driving on their physical health (dependent variable) and its relationship with socio-demographic and job characteristics of drivers (predictor variables). The model shows that drivers belonging to 'Asian or Asian British' ethnicities are likely to report significantly better scores about the impact of their work on their physical health (β = 20.06) compared to drivers identifying as White. Female drivers also tend to report more positively about the status of their physical health compared to male drivers (β = 10.60).

However, drivers with caring responsibilities tend to report lower scores about the impact of driving on their physical health compared to drivers who do not have caring responsibilities (β= -4.91).

With respect to job characteristics, the model shows that drivers employed on zero hour contracts are likely to report approximately 10 points lower regarding the impact of HGV driving on their physical health compared to drivers on permanent contracts (β= -9.76).

## IMPACT OF HGV DRIVING ON RELATIONS WITH CHILDREN

| PREDICTOR VARIABLES | N | ADJUSTED β | 95% WALD CONFIDENCE INTERVAL LOWER | UPPER | SIG. |
|---|---|---|---|---|---|
| **WHITE ETHNIC SUB-GROUP** | | | | | |
| Any other white background | 59 | -4.84 | -12.25 | 2.56 | 0.20 |
| Roma | n<5 | 2.08 | -36.84 | 41.00 | 0.91 |
| Irish | 17 | -9.02 | -22.40 | 4.35 | 0.18 |
| English, Welsh, Scottish, Northern Irish or British | 1127 | 0 | . | . | . |
| **GENDER** | | | | | |
| Other (Non-Binary, 'Prefer not to say', 'Other') | 5 | 1.12 | -23.62 | 25.86 | 0.92 |
| **Female** | **107** | **8.98** | **3.41** | **14.55** | **0.002** |
| Male | 1093 | 0 | . | . | . |
| **CLASS OF HGV** | | | | | |
| Other | 13 | 9.82 | -5.57 | 25.22 | 0.21 |
| 7.5 ton | n<5 | 32.31 | 4.87 | 59.76 | 0.02 |
| **Rigid** | **182** | **5.11** | **0.68** | **9.53** | **0.02** |
| Artic | 1006 | 0 | . | . | . |
| **CARING RESPONSIBILITIES** | | | | | |
| Prefer not to say | 51 | 5.10 | -2.92 | 13.13 | 0.21 |
| **With caring responsibilities** | **540** | **-5.28** | **-8.56** | **-2.01** | **0.002** |
| No caring responsibilities | 614 | 0 | . | . | . |

Discussion: A multivariable generalised linear regression was performed to predict the relationship between drivers' socio-demographic and job characteristics (predictor variables) and their self-reported scores about the impact of HGV driving on the relationships with their children (dependant variable). The model shows that female drivers tend to report better quality relations with children compared to male drivers (β= 8.98). With respect to job characteristics, the model shows that drivers driving rigid trucks are likely to report better scores about their relations with children compared to drivers driving artic trucks (β = 5.11).

Drivers with caring responsibilities are likely to report lower scores regarding the impact of HGV driving on the relations with their children compared to drivers without caring responsibilities (β= -5.28).

## IMPACT OF HGV DRIVING ON RELATIONS WITH PARTNER

| PREDICTOR VARIABLES | N | ADJUSTED β | 95% WALD CONFIDENCE INTERVAL LOWER | UPPER | SIG. |
|---|---|---|---|---|---|
| **GENDER** | | | | | |
| Other (Non-Binary, 'Prefer not to say', 'Other') | 8 | 0.39 | -19.59 | 20.39 | 0.96 |
| **Female** | **162** | **5.69** | **1.03** | **10.35** | **0.01** |
| Male | 1353 | 0 | . | . | . |
| **CARING RESPONSIBILITIES** | | | | | |
| Prefer not to say | 58 | 0.44 | -7.10 | 8.00 | 0.90 |
| **With caring responsibilities** | **553** | **-6.91** | **-9.92** | **-3.89** | **<.001** |
| No caring responsibilities | 912 | 0 | . | . | . |
| **CLASS OF HGV DRIVEN** | | | | | |
| Other | 18 | 7.24 | -6.14 | 20.64 | 0.28 |
| 7.5 ton | 9 | 20.91 | 2.28 | 39.53 | 0.02 |
| **Rigid** | **246** | **5.29** | **1.40** | **9.18** | **0.008** |
| Artic | 1250 | 0 | . | . | . |

Discussion: A multivariable generalised linear regression was performed to explore the association between drivers' socio-demographic and job characteristics (predictor variables) with self-reported scores about impact of HGV driving on the quality of relationships with their partners (dependent variable). The model suggests that female drivers tend to report better scores with respect to the impact of being a trucker on their relations with partners compared to male drivers (β = 5.69). With respect to job characteristics, drivers driving rigid trucks are likely to report better relations with their partners compared to drivers driving artic trucks (β= 5.29).

However, drivers with caring responsibilities tend to report lower scores while assessing the quality of relations with their partners compared to drivers without caring responsibilities (β = -6.91).

## IMPACT OF HGV DRIVING ON WIDER SOCIAL RELATIONS

| PREDICTOR VARIABLES | N | ADJUSTED β | 95% WALD CONFIDENCE INTERVAL LOWER | UPPER | SIG. |
|---|---|---|---|---|---|
| **WHITE ETHNIC SUB-GROUP** | | | | | |
| Any other white background | 83 | -5.36 | -11.60 | 0.86 | 0.09 |
| Roma | n<5 | 14.13 | -17.64 | 45.92 | 0.38 |
| Irish | 26 | -6.24 | -17.09 | 4.60 | 0.25 |
| English, Welsh, Scottish, Northern Irish or British | 1547 | 0 | . | . | . |
| **GENDER** | | | | | |
| Other (Non-Binary, 'Prefer not to say', 'Other') | 6 | -19.44 | -41.98 | 3.10 | 0.09 |
| Female | 218 | 2.45 | -1.58 | 6.48 | 0.23 |
| Male | 1435 | 0 | . | . | . |
| **HOURS OF WORK** | | | | | |
| **Part-time** | **92** | **8.42** | **2.45** | **14.38** | **0.006** |
| Full-time | 1567 | 0 | . | . | . |
| **CLASS OF HGV** | | | | | |
| Other | 19 | 4.36 | -8.38 | 17.10 | 0.50 |
| 7.5 ton | 9 | 19.60 | 1.24 | 37.97 | 0.03 |
| **Rigid** | **273** | **8.13** | **4.44** | **11.83** | **<.001** |
| Artic | 1358 | 0 | . | . | . |
| **CARING RESPONSIBILITIES** | | | | | |
| Prefer not to say | 60 | -3.42 | -10.75 | 3.90 | 0.36 |
| **With caring responsibilities** | **559** | **-5.28** | **-8.19** | **-2.37** | **<.001** |
| No caring responsibilities | 1040 | 0 | . | . | . |
| **NIGHTS AWAY FROM HOME** | | | | | |
| | 1659 | -0.35 | -0.72 | 0.02 | 0.06 |

Discussion: A multivariable generalised linear regression was performed to explore the association of drivers' socio-demographic and job characteristics (predictor variables) with the scores given by drivers about the impact of HGV driving on the quality of their wider social relationships (dependant variable). With relation to job characteristics, drivers working part-time are likely to rate the quality of their social lives more positively than drivers who work full-time ($\beta = 8.42$). The model also shows that drivers driving rigid trucks are likely to report better quality of social lives compared to drivers driving artic trucks ($\beta = 8.13$).

Drivers with caring responsibilities are likely to report lower scores regarding the impact of HGV driving on the quality of their social lives/wider social relationships compared to drivers without caring responsibilities ($\beta = -5.28$).

# 3. BINARY LOGISTIC REGRESSIONS

Binary logistic regressions were performed to explore the associations between certain socio-demographic and job characteristics (predictors/factors) on experiences such as discrimination, drivers' consideration to quit HGV driving and drivers' annual incomes (dependent variables with binary answers). Similar to the linear regressions, we ran simple univariable logistic regressions testing each of the socio-demographic and job characteristic of respondents against the dependant variable. Those predictor variables that exhibited statistical significance ($p < 0.05$) were then taken together and fit in a multivariable model.

## EXPERIENCE OF DISCRIMINATION (Q: HAVE YOU EXPERIENCED DISCRIMINATION IN YOUR CURRENT WORK AS AN HGV DRIVER? ANSWER OPTIONS: YES/NO).

Higher odds ratios (OR) indicate a greater likelihood of having experienced discrimination.

| VARIABLES | N | UNADJUSTED ODDS RATIO (95% CI) | ADJUSTED ODDS RATIO (95% CI) | ADJUSTED SIG. |
|---|---|---|---|---|
| **WHITE ETHNIC SUB-GROUP** | | | | |
| English, Welsh, Scottish, Northern Irish or British | 1589 | Reference group | Reference group | |
| Irish | 30 | 1.33 (0.63, 2.83) | 1.42 (0.65, 3.06) | 0.37 |
| Roma | n<5 | 4.62 (0.41, 51.08) | 4.26 (0.36, 49.54) | 0.24 |
| **Any other white background** | **84** | **1.81 (1.16, 2.83)** | **1.92 (1.22, 3.03)** | **0.005** |
| **SEXUAL ORIENTATION** | | | | |
| Heterosexual/straight | 1602 | Reference group | Reference group | |
| Gay/Lesbian | 22 | 1.28 (0.53, 3.07) | 1.11 (0.45, 2.74) | 0.81 |
| **Bisexual** | **36** | **2.36 (1.23, 4.54)** | **2.20 (1.11, 4.38)** | **0.02** |
| Other | n<5 | 6.72 (0.69, 64.83) | 6.84 (0.68, 68.0) | 0.10 |
| Prefer not to say | 42 | 1.30 (0.72, 2.34) | 1.06 (0.53, 2.12) | 0.85 |
| **CONTRACT TYPE** | | | | |
| Permanent | 1508 | Reference group | Reference group | |
| Temporary | 39 | 1.46 (0.80, 2.67) | 1.21 (0.60, 2.42) | 0.59 |
| Temp to Perm | 10 | 0.62 (0.17, 2.24) | 0.72 (0.15, 3.43) | 0.68 |
| Zero Hours | 86 | 1.79 (1.17, 2.74) | 1.47 (0.93, 2.34) | 0.09 |
| Other (Self-employed) | 63 | 1.36 (0.81, 2.29) | 1.33 (0.77, 2.27) | 0.29 |
| **GENDER** | | | | |
| Male | 1474 | Reference group | Reference group | |
| **Female** | **226** | **2.52 (1.90, 3.34)** | **2.65 (1.98, 3.56)** | **<.001** |
| Other | 6 | 5.84 (1.50, 22.69) | 5.02 (0.87, 28.82) | 0.07 |
| **CARING RESPONSIBILITIES** | | | | |
| No caring responsibilities | 1076 | Reference group | Reference group | |
| **With caring responsibilities** | **566** | **1.13 (1.06, 1.62)** | **1.33 (1.06, 1.66)** | **0.01** |
| Prefer not to say | 64 | 0.94 (0.54, 1.62) | 1.01 (0.56, 1.80) | 0.96 |

Discussion: A multivariable logistic regression analysis was performed to ascertain the association between socio-demographic and job characteristics of current HGV drivers on their experiences of discrimination. The model points to drivers identifying as belonging to 'Any other white background' (this includes drivers from Easten European countries) being approximately 2 times more likely to be discriminated than drivers who identified as 'English, Welsh, Scottish, Northern Irish or British' (OR=1.92; 95% CI 1.22, 3.03). Drivers who identified as bisexual are 2.2 times more likely to experience discrimination compared to those in heterosexual relationships (OR = 2.2; 95% CI 1.11, 4.38). The model also shows that female drivers are 2.6 times more likely to experience discrimination compared to male drivers (OR = 2.65; 95% CI 1.98, 3.56). Drivers with caring responsibilities also show to be 1.3 times more likely to experience discrimination than those without caring responsibilities (OR = 1.33; 95% CI 1.06, 1.66).

## CONSIDERED QUITTING HGV DRIVING IN THE LAST 12 MONTHS (Q: HAVE YOU CONSIDERED QUITTING HGV DRIVING IN THE LAST 12 MONTHS? ANSWER OPTIONS: YES, NO)

Higher odds ratios indicate a greater likelihood that a driver reported giving consideration to quitting in the previous 12 months.

| VARIABLES | N | UNADJUSTED ODDS RATIO (95% CI) | ADJUSTED ODDS RATIO (95% CI) | ADJUSTED SIG. |
|---|---|---|---|---|
| **GENDER** | | | | |
| Male | 1517 | Reference Group | Reference Group | |
| **Female** | **229** | **0.55 (0.42, 0.73)** | **0.70 (0.52, 0.94)** | **0.02** |
| Other | 10 | 7.19 (0.90, 56.93) | 7.48 (0.91, 60.94) | 0.06 |
| **AGE GROUPS** | | | | |
| 18-29 | 203 | Reference Group | Reference Group | |
| 30-49 | 756 | 1.31 (0.96, 1.79) | 0.96 (0.69, 1.33) | 0.81 |
| 50+ | 797 | 1.50 (1.10, 2.05) | 0.84 (0.57, 1.25) | 0.40 |
| **CARING RESPONSIBILITIES** | | | | |
| No caring responsibilities | 1100 | Reference Group | Reference Group | |
| **With caring responsibilities** | **589** | **1.38 (1.13, 1.69)** | **1.52 (1.22, 1.90)** | **<.001** |
| Prefer not to say | 67 | 1.63 (0.98, 2.71) | 1.60 (0.95, 2.69) | 0.07 |
| **CLASS OF HGV DRIVEN** | | | | |
| Artic | 1434 | Reference Group | Reference Group | |
| Rigid | 292 | 0.71 (0.55, 0.91) | 0.78 (0.60, 1.01) | 0.06 |
| 7.5 ton | 9 | 0.23 (0.04, 1.16) | 0.31 (0.63, 1.53) | 0.15 |
| Other | 21 | 1.61 (0.64, 4.02) | 1.58 (0.61, 4.07) | 0.34 |
| **HOURS OF WORK** | | | | |
| **Part-time work** | **102** | **0.60 (0.40, 0.90)** | **0.60 (0.39, 0.92)** | **0.02** |
| **YEARS OF EXPERIENCE** | | | | |
| | | **1.02 (1.01, 1.02)** | **1.03 (1.01, 1.03)** | **<.001** |

Discussion: A multivariable binary logistic regression was performed to ascertain the relationship between drivers' personal and job characteristics with their considerations to quit in the previous 12 months. The multivariable regression model showed that the likelihood of female drivers considering quitting HGV driving is 30% lesser than that of men [(1-0.70)*100].

However, drivers with caring responsibilities are 1.5 times more likely to have considered quitting compared to drivers without caring responsibilities (OR = 1.52; 95% CI 1.22, 1.90). With respect to job characteristics, the model shows that with every additional year of experience that a driver gains, the likelihood of considering quitting HGV driving significantly increases by 3% per year (OR= 1.03; 95% CI 1.01, 1.03). The model also shows that drivers who work part-time hours are approximately 40% less likely to consider quitting HGV driving compared to those working full-time hours (OR = 0.60; 95% CI 0.39, 0.92) .

## INCOME DIFFERENCES AS AN HGV DRIVER: A GENDER PAY GAP?

Contrary to the prevailing discourse of HGV driving being a sector in which 'there is no gender pay gap', our data show that gender does seem to have an association with the pay of HGV drivers.

We recoded the categorical income data from our survey into a binary variable, splitting our data into two income groups with the median earnings (gross) of HGV drivers (Large Goods Vehicles or LGV as per UK government terminology) as a reference (approximately £30,000 p.a.) based on ONS wage data for 2023[3]. We split our current driver respondents into two groups: drivers earning equal to or less than £29,999 and drivers earning equal to or more than £30,000 per annum to run the logistic regression model. Drivers who reported earnings of above £30,000 were recoded as 1, and drivers earning =/below £29,999 were recoded as 0.

We recognise that driver pay can vary because of a variety of factors such as employment type, years of experience, part-time or full-time employment, contract type. Therefore, we ran a multiple regression model with these predictor variables in the model to take into account these job characteristics that result in income differences amongst HGV drivers. The table below provides results of the multivariable regression model

Dependent variable: Annual Income =/>£30,000 =1; Annual Income =/< £29,999 = 0

| VARIABLES | N | UNADJUSTED ODDS RATIO (95% CI) | ADJUSTED ODDS RATIO (95% CI) | ADJUSTED SIG. |
|---|---|---|---|---|
| **YEARS OF EXPERIENCE** | | | | |
| | 1756 | 1.01 (1, 1.02) | 1.00 (0.99, 1.02) | 0.53 |
| **NIGHTS AWAY FROM HOME** | | | | |
| | **1756** | **1.17 (1.10, 1.24)** | **1.12 (1.05, 1.19)** | **<.001** |
| **GENDER** | | | | |
| Male | 1517 | Reference Group | Reference Group | |
| **Female** | **229** | **0.34 (0.25, 0.45)** | **0.38 (0.26, 0.55)** | **<.001** |
| Others | 10 | 0.25 (0.07, 0.89) | 0.41 (0.08, 1.96) | 0.26 |
| **EMPLOYMENT TYPE** | | | | |
| Directly employed by a company | 1522 | Reference Group | Reference Group | |
| Contracted through an agency to a single company | 69 | 0.45 (0.25, 0.78) | 1.15 (0.50, 2.63) | 0.74 |
| Contracted through an agency to multiple companies | 71 | 0.20 (0.12, 0.33) | 0.60 (0.27, 1.32) | 0.21 |
| Self-employed with own business | 73 | 0.21 (0.13, 0.35) | 0.58 (0.21, 1.57) | 0.29 |
| Other | 21 | 0.50 (0.18, 1.40) | 1.45 (0.38, 5.44) | 0.57 |
| **COMPANY SIZE** | | | | |
| Owner Operator | 27 | Reference Group | Reference Group | <.001 |
| **Small (2-30 vehicles)** | **513** | **4.68 (2.13, 10.31)** | **4.36 (1.56, 12.19)** | **0.005** |
| **Medium (31-100 vehicles)** | **376** | **5.10 (2.29, 11.35)** | **5.16 (1.76, 15.06)** | **0.003** |
| **Large (101-250 vehicles)** | **259** | **8.56 (3.68, 19.87)** | **9.59 (3.10, 29.66)** | **<.001** |
| **Extra Large (251+ vehicles)** | **544** | **11.5 (5.15, 26.03)** | **13.5 (4.50, 40.56)** | **<.001** |
| **I'm not sure** | **37** | **2.95 (1.04, 8.32)** | **6.61 (1.67, 26.10)** | **0.007** |

| VARIABLES | N | UNADJUSTED ODDS RATIO (95% CI) | ADJUSTED ODDS RATIO (95% CI) | ADJUSTED SIG. |
|---|---|---|---|---|
| **CONTRACT TYPE** | | | | |
| Permanent | 1539 | Reference Group | Reference Group | |
| Temporary | 46 | 0.16 (0.09, 0.30) | 0.48 (0.18, 1.24) | 0.13 |
| Temp to Perm | 14 | 0.15 (0.05, 0.44) | 0.49 (0.12, 1.94) | 0.31 |
| Zero Hours | 93 | 0.26 (0.17, 0.41) | 0.93 (0.45, 1.88) | 0.84 |
| Other (Self-employed) | 64 | 0.20 (0.12, 0.35) | 0.73 (0.27, 1.98) | 0.54 |
| **CLASS OF HGV** | | | | |
| Artic | 1434 | Reference Group | Reference Group | |
| **Rigid** | **292** | **0.38 (0.28, 0.52)** | **0.42 (0.30, 0.60)** | **<.001** |
| 7.5 ton | 9 | 0.19 (0.05, 0.74) | 0.30 (0.06, 1.44) | 0.13 |
| Other | 21 | 0.25 (0.10, 0.63) | 0.22 (0.08, 0.59) | 0.003 |
| **HOURS OF WORK** | | | | |
| **Part-time** | **102** | **0.04 (0.02, 0.07)** | **0.04 (0.02, 0.08)** | **<.001** |

The multivariable binary regression model revealed gender to be a statistically significant predictor even after adjusting for all the other variables that might have an effect on driver pay. Female drivers are 62% less likely than male drivers to earn more than £30,000 per year (OR= 0.38; 95% CI 0.26, 0.55). With respect to job characteristics, the model suggests that drivers of rigid and other types of HGVs are 58% and 78% less likely to earn more than £30,000 annually compared to drivers of 'Artics'. Predictably, the model also indicates that drivers who work part-time are 96% less likely to earn more than £30,000 a year from HGV driving (OR = 0.04; 95% CI = 0.02, 0.08).

With respect to job characteristics, the model shows that with every one night away from home, drivers have a 12% higher likelihood of earning more than £30,000 (OR = 1.12; 95% CI 1.05, 1.19). The model also shows that as company size increases, there is a consistent increase in the likelihood of driver earnings to go above £30,000.

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