

Annual Ticketless Travel Survey – ScotRail Franchise Agreement Schedule 1.6 (22.6)

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Independent Review of Ticketless Travel

Executive Summary

The ScotRail franchise is currently operated by Abellio who were awarded the ScotRail franchise in October 2014 and commenced operations in April 2015. As part of the award of the franchise, Abellio were required to conduct an independent Ticketless Travel Survey for the full network – Committed Obligation 22.6.

The Ticketless Travel Survey was undertaken on the ScotRail network between Saturday 6th June and Friday 19th June 2015. 'Steer Davies Gleave' was appointed by Abellio ScotRail to undertake the Ticketless Travel Survey with field work contracted to 'Sky High'.

The survey took a stratified sample across eight service groups within the industry agreed time periods. The survey comprised of 60 shifts over a two week period and collected 27,552 observations.

The central case result is an irregularity rate of 8.49 but when pay on train customers who board at a location without ticket issuing facilities are reflected the rate is reduced to 7.29%. Abellio ScotRail opted to use the same methodology for measuring ticketless travel as the Department for Transport and other Train Operating Companies (TOCs), which will allow for consistent comparisons to be made.

The volume of ticketless travel was highest in Suburban West – Group 1 (Glasgow North Electrics, Glasgow South Electrics, Argyle Line, and Motherwell to Cumbernauld) which had a rate at 13.54%, followed by Suburban West – Group 4 (Glasgow Central to Paisley Canal, East Kilbride, Barrhead, Kilmarnock, Edinburgh via Shotts) at 9.91%.

Other Express Services (between Glasgow / Edinburgh to Aberdeen / Dyce / Inverness) have the lowest irregularity rate, at 1.51%, followed by the Rural Services group at 2.90%.

The Open Access policy across the ScotRail franchise means that the volume of passengers travelling on services without a ticket is significantly higher than on other TOCs. The impact of pay-on-train passengers on the ticketless travel percentage is significant. The independent survey highlighted that 143 stations in the ScotRail network have no ticket issuing facilities. Those stations are predominantly classified as category 4, 5 and 6 - low footfall stations.

However the survey reported that 80% to 85% of pay-on-train customers in terms of footfall have access to ticket issuing facilities at the origin station but either opted not to use those facilities or that the facilities did not have the capacity to meet demand. When all of these factors are reflected in the overall weighted ticketless travel result the rate drops from 8.49% to 7.29%.

Further analysis of the pay-on-train passenger demographic demonstrates that the key areas that influence ticketless travel were the Suburban West – Group 1 route at un-gated stations and the Glasgow to Edinburgh Express route.

Abellio have given a clear commitment to deliver a step change in how revenue protection is carried out, which includes a clear target to reduce the levels of ticketless travel and fare evasion over the life of the franchise. Work has already commenced in creating an environment where this can be achieved.

There will also be a focus on ensuring ScotRail are at the cutting edge on how and where products are retailed, looking beyond the traditional rail models by developing new and innovative partnerships.

ScotRail also plan to develop innovative schemes and technology to deliver enhanced opportunities for customers to purchase products and for staff to retail more efficiently.

A refined revenue organisation will also be developed to deliver economy of scale across the estate whilst enhancing productivity and deliver a workforce that is flexible and matches customer and business needs.

New 'Buy Before You Board' marketing campaigns will also be created to encourage passengers to buy tickets before boarding. These campaigns will clearly highlight the facilities available at stations (such as ticket offices and the availability of TVMs), as well as informing passengers of any savings that can be made through buying tickets prior to boarding via the ScotRail website or app. Finally we will also work in partnership with Transport Scotland to explore all ticketing options to encourage behavioural change.

Introduction

The Franchisee (Abellio ScotRail) was tasked with conducting an independent review (Committed Obligation 22.6) to ascertain the instances of ticketless travel and fare evasion across the full network.

The main survey was undertaken between Saturday 6th June and Friday 19th June 2015 inclusive by Steer Davies Gleave (SDG). To ensure that a representative sample of passengers from across the ScotRail network was collected and that it aligned with how ScotRail manage their business, eight survey service groups were defined across the franchise.

Service Group	Origin/Destination	
Glasgow – Edinburgh Express	Glasgow Queen Street to Edinburgh via Falkirk High	
Other Express Services	Glasgow Queen Street to Aberdeen and Dyce, Edinburgh to Aberdeen, and Glasgow Queen St/Edinburgh to Perth/Inverness	
Suburban West	Group 1	Glasgow North Electrics, Glasgow South Electrics, Argyle Line, and Motherwell - Cumbernauld
	Group 2	Glasgow Central to Ayr, Gourock / Wemyss Bay and Ardrossan / Largs, and Kilmarnock – Girvan
	Group 3	Glasgow Queen Street – Cumbernauld, Croy / Dunblane, and Falkirk Grahamston, and the Northern Suburban Line
	Group 4	Glasgow Central - Paisley Canal, East Kilbride, Barrhead / Kilmarnock and Shotts/ Edinburgh.
Suburban East	Edinburgh to Dunblane, Haymarket to North Berwick, Fife Circle, Newcraighall	
Rural Services	Inverness to Thurso/Wick and Kyle of Lochalsh, Aberdeen to Inverness, Glasgow Queen Street to Oban, Fort William and Mallaig, and Glasgow Central/Ayr/Carlisle to Stranraer	

A detailed schedule was agreed with SDG to ensure the following objectives were achieved:

- Covering as large a geographical area as possible;
- Sampling all service groups from end-to-end; and
- Sampling on different days of the week and at different times of the day.

Whilst:

- Ensuring a large sample on service groups with the highest revenue and journeys; and
- Covering passenger flows in the right direction.

Constraints included:

- Sensible wait times between trains;
- Avoiding any planned engineering works and major events, e.g. football matches that may bias the survey.

Overall the objective was to capture a representative and significant enough sample for each service group and time period to enable the estimation of an irregularity rate that minimizes margins of error.

Below is a summary of the survey shift schedule, all shifts involved surveyors working in pairs.

Table 1 – Schedule

Service Group	Weekday AM	Weekday PM	Weekend	Total Shifts
Glasgow – Edinburgh Express	3	3	2	8
Other Express Services	3	3	2	8
Suburban West - 1	3	3	1	7
Suburban West - 2	3	3	1	7
Suburban West - 3	3	3	1	7
Suburban West - 4	3	3	1	7
Suburban East	3	3	2	8
Rural Services	3	3	2	8
Total	24	24	12	60

In the survey there were at least 300 observations in all but one service group/time period segment. The average number of observations for all service groups and time period segments were 460. The table below captures the observations:

Table 2 - Schedule

Service Group	Weekday	Weekday	Weekday	Weekday	Weekend	Total observations	% of total	Total Shifts
	06:00 – 09:59	10:00 – 15:59	16:00 – 18:59	19:00 – 01:00				
Glasgow – Edinburgh								
Express	1,190	1,920	914	1,333	799	6,156	22.3%	8
Other Express Services	574	1,208	468	374	1,979	4,603	16.7%	8
Suburban East	1,119	1,092	326	451	9,09	3,897	14.1%	8
Rural Services	334	1,264	470	164	424	2,656	9.6%	8
Suburban West - 1	512	569	411	438	420	2,350	8.5%	7
Suburban West - 2	435	622	611	387	430	2,485	9.0%	7
Suburban West - 3	627	860	556	254	439	2,736	9.9%	7
Suburban West - 4	648	770	315	322	614	2,669	9.7%	7
Total	5,439	8,305	4,071	3,723	6,014	27,552	100%	60
% of total	19.7%	30.1%	14.8%	13.5%	21.8%	100%		

Data Collection Methodology

The ticketless travel survey was an electronic survey, which utilised handheld computers and dedicated survey software.

The key elements of the survey methodology were:

- Detailed shift schedule for all surveyors, indicating the exact trains, route sections to survey, and which carriage to board for each train;
- Prior to surveying, each surveyor made an announcement to all passengers on entering each carriage, stating they were performing a survey looking at ticket usage on behalf of ScotRail;
- On trains with staff the surveyor first met with the ticket examiner / conductor to check which carriages had already been checked; ensuring information was recorded for every passenger in a train carriage, including alighters and those refusing to show their ticket.

In addition to counting those with valid tickets, the surveyors recorded ticket irregularity, those who alighted the train before being surveyed and those who refused to participate in the survey.

The following irregularity types were recorded:

Table 3 - Classification Irregularity Types

Irregularity Type	Description	Irregularity Class
Non-payment	The passenger cannot produce a ticket of any kind	No Ticket Whatsoever
Pay on the train	The passenger does not have a ticket, but has explicitly stated that they intended to buy a ticket on board the train	
Journey taken after valid date	The ticket or pass has expired	Other No Ticket
Journey taken before valid date	The pass is not yet valid	
Forged/altered	The ticket/pass/photocard has been tampered with/forged, defaced or altered	Wrong/Invalid Ticket
Overriding	The passenger has travelled further than the destination on their ticket	
Missing/Stolen	The ticket or pass is missing or suspected to have been stolen	
Transferred use	The passenger is using someone else's pass (photocard does not match)	
Used at invalid time	The ticket or pass is being used at the wrong time of day	
Child impersonation	The passenger has a child ticket or pass, but is clearly an adult	
Invalid Class	The passenger is using a Standard ticket on a First class carriage	
Misuse of railcard	The passenger has a ticket or pass that requires a railcard, but does not possess the appropriate card	Refusal
No photocard	The passenger has a pass but no valid photocard	
Alighter	The passenger alights the train before the surveyors can interview them	Alighter
Refusal	The passenger refuses to take part in the survey	Refusal

ScotRail informed SDG of ticketing issues on the network throughout the survey, e.g. where ticket machines were not working. SDG made the surveyors aware of any major issues and these issues have been considered as part the analysis.

Survey Results

The survey took a stratified sample across eight service groups and five time periods. It comprised 60 shifts over a two week period and collected 27,552 observations.

In the survey the weekdays were split into four time periods – AM Peak, Inter-Peak, PM Peak and Evening.

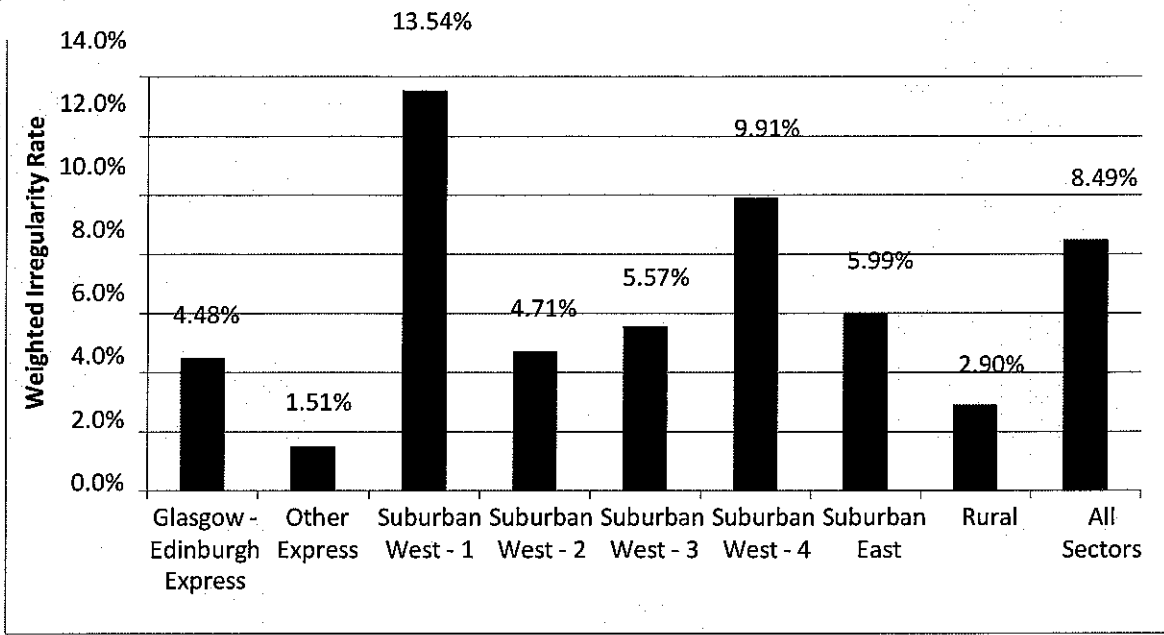
The result is a weighted irregularity rate of 8.49%, this is based on a sample for each service group and time period (segment) adjusted to give proportionate weight to each segment reflecting actual passenger volumes, combined with assumptions on:

- The proportion of those who refuse to have their ticket checked (refusals) who fare evade; and
- The proportion of those who alight before their ticket is checked (alighters) who fare evades.

Central Case Irregularity Rate by Service Group

The chart below shows the central case irregularity rate by service group.

Table 4 – Service Groups

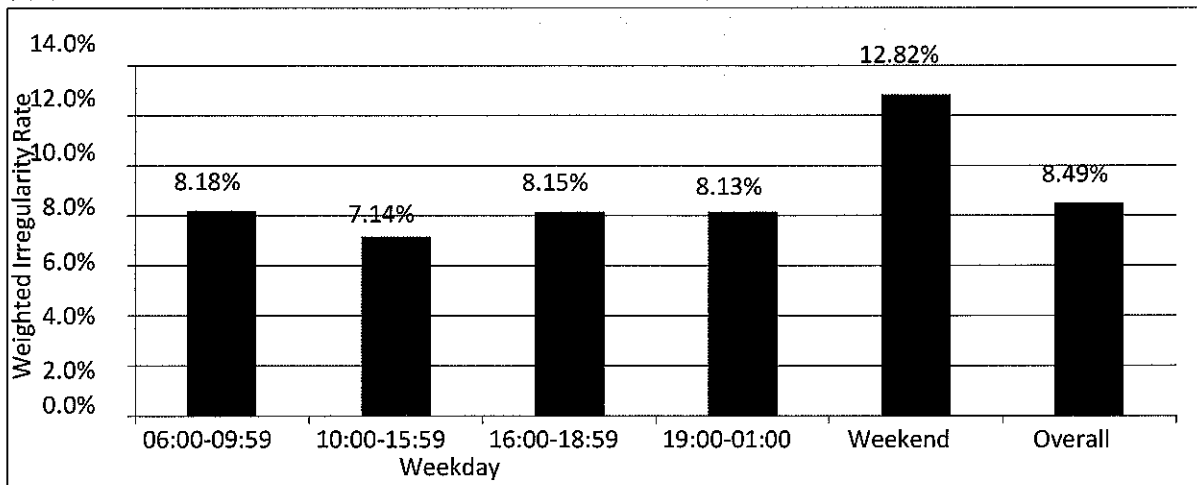


In general it is the suburban service groups which have the highest irregularity rates.

- The Suburban West – Group 1 service group has the highest irregularity rate across all service groups, at 13.54%. This service group also has by far the highest service group weightings due to its passenger volumes, which means it has a significant impact on the overall irregularity rate.
- Rural and long distance services (Glasgow to Edinburgh, and express services to Aberdeen and Inverness) have much lower irregularity rates, which mitigates the impact of the higher irregularity rates on more suburban services.

The chart below captures the central irregularity rate by time period:

Table 5 - Time Period



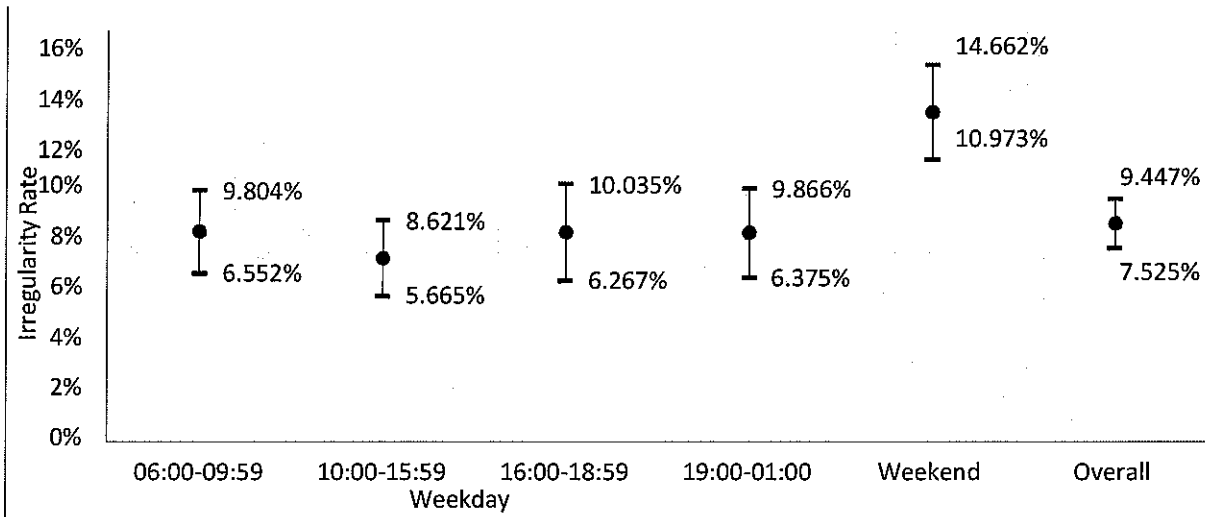
- The weekend time period has the highest irregularity rate, at 12.82%. This has less of an impact on the overall irregularity due to lower passenger volumes. Weekday irregularity rates are generally consistent at around 8%, with the weekday inter-peak the lowest rate across the five time periods.
- Weekday AM and PM peaks have irregularity rates of 8.15% and 8.12% respectively and have a large influence on the overall rate due to the passenger volumes in these time periods.

Confidence Level

The survey results have a high confidence rate for the results. Overall the irregularity rate has a margin of error of $\pm 0.96\%$.

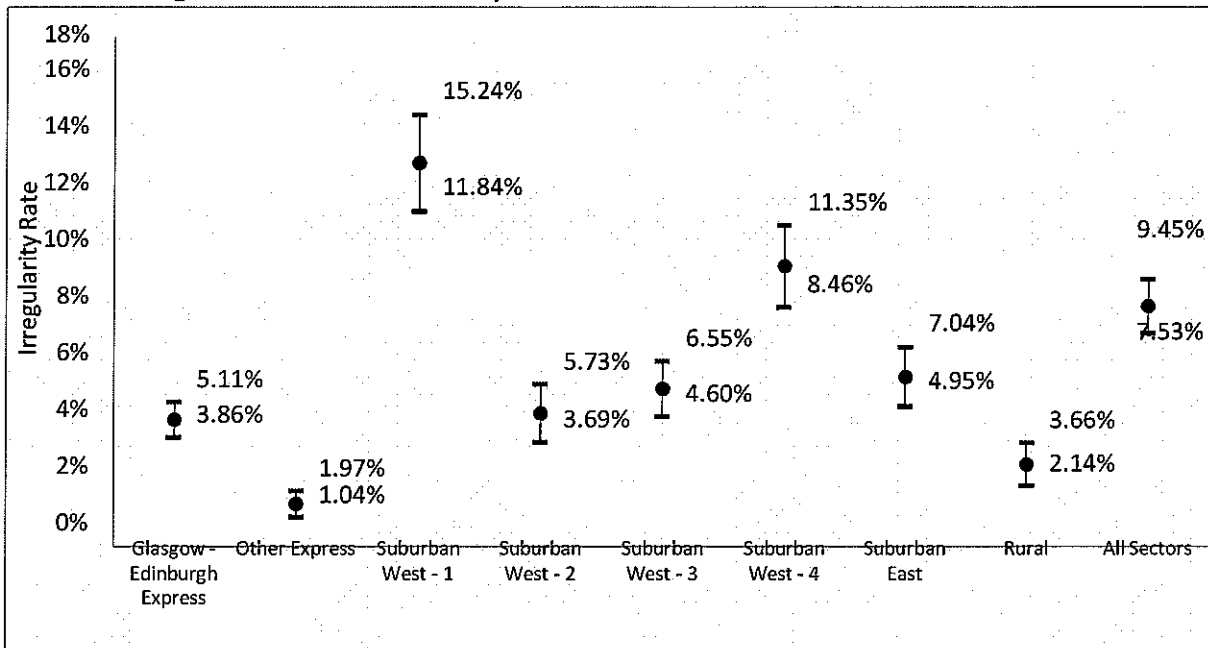
The maximum margin of error for any time period is $\pm 1.88\%$ which is for the weekday PM peak, though this is not materially different to the other error margins in the other time periods, which are captured in the chart below:

Chart 1 – Margin of Error – Time Periods



Across the service groups the margins of error are slightly lower than by time period, because in most cases the irregularity rates are notably below the average (because the overall rate is dominated by Suburban West – Group 1).

Chart 2 – Margin of Error – Service Groups



Current Revenue Protection Measures

ScotRail operates approximately 750,000 train services each year and has over 350 stations across the network (full details are captured in Appendix A and B). There are currently significant measures in place to protect revenue and deliver a safe environment.

Currently 72% of all customer journeys pass through a barrier on at least one leg of their journey. ScotRail are committed to full on train coverage across the fleet, the latest figures showing 99.8% compliance rate. The table below summarises all activity:

Table 6 – RP Measures

Station	Mobile
14 Gated Stations	749,500 Train Services
10 Manual Barriers	383 Ticket Examiners
265 Barrier Staff	593 Conductors
201 TVM's @ 148 Locations	138,000 Full Time Diagrams
405 Smart Card Validators @ 202 Locations	4,500 Part Time Diagrams
142 Staffed Booking Offices	6 Fraud & Security Officers

Correlation to Crime

Analysis has been carried out to review if levels of ticketless travel and fare evasion influence crime across the ScotRail network. Data was extracted from internal and external sources to ensure a full and comprehensive review took place.

The data sources indicate there have been 42 incidents of crime impacting upon staff carrying out revenue protection duties since the franchise commenced on 1st April 2015.

The top 3 grades affected are:

- Gateline Staff [REDACTED]
- Ticket Examiner / Conductor [REDACTED]
- Platform Staff [REDACTED]

Period	Office Staff	On-Board Catering Staff	On-Board Other Staff	Platform Staff	Gateline Staff	Shunting Staff	Driver	T/E / Conductor	
P01 2015-16	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
P02 2015-16	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
P03 2015-16	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
P04 2015-16	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

The data indicates that since April 2015 [REDACTED] incidents have been recorded where passengers have refused to purchase a ticket or had an invalid ticket. Predominantly on train, gateline & stations staff has been affected as a result.

The data also informs that alcohol related assaults accounted for [REDACTED] incidents.

Over 64% or [REDACTED] of the incidents on our staff took place en-route within our trains.

Incidents en-route by Service Group:

- Suburban West – Group 1 ([REDACTED])
- Rural Services ([REDACTED])
- Other Express ([REDACTED])
- Suburban West – Group 2 ([REDACTED])
- Glasgow to Edinburgh Express ([REDACTED])
- Suburban West – Group 3 ([REDACTED])
- Suburban West – Group 4 ([REDACTED])
- Suburban East ([REDACTED])

The stations listed below account for the highest percentage of all incidents:

- Haymarket ([REDACTED])
- Edinburgh Waverley ([REDACTED])
- Glasgow Central Low Level ([REDACTED])
- Other Stations ([REDACTED])

The findings would suggest a link between ticketless travel and fare evasion with the level of crime, however, further analysis and a larger sample size is required to be certain. [REDACTED]

Conclusions

The overall weighted ticketless travel rate is 8.49%, the survey and subsequent results now bring ScotRail in line with all other Train Operating Companies in terms of how ticketless travel and fare evasion is measured. As a result ScotRail can now be benchmarked.

The ticketless travel rate does not necessarily imply high revenue at risk, or vice versa. This is because average yields, and therefore revenues, vary by service group. It is evident though that Suburban West – Group 1 is a key service group, with a high irregularity rate and therefore associated revenue-at-risk.

The survey clearly identifies the impact of customers opting to pay on train, the table below shows the irregularity rates by service group, even if pay-on-train passengers travelling from a station with no ticketing facilities available at the time of travel are no longer categorized as ticketless travel.

Table 7- Pay on Train

Service Group	Irregularity Rate	
	Before	After
Glasgow - Edinburgh Express	4.48%	4.48%
Other Express	1.51%	1.37%
Suburban West - 1	13.54%	11.46%
Suburban West - 2	4.71%	3.42%
Suburban West - 3	5.57%	4.66%
Suburban West - 4	9.91%	8.86%
Suburban East	5.99%	5.89%
Rural	2.90%	2.45%
All Sectors	8.49%	7.29%

As the table illustrates changing these assumptions has an impact on the level of ticketing irregularities, but only reduces the overall weighted ticketless travel rate from 8.49% to 7.29%, and the potential journeys-at-risk by approximately 12.5%.

The analysis of the pay-on-train passengers showed that a reasonable proportion of those passengers (10-15%) are legitimately travelling on ScotRail services without a ticket because there were no ticketing facilities at the station they boarded the train at.

Nonetheless, the majority of pay-on-train passengers did have the opportunity to purchase a ticket at the station they boarded at, either at the ticket office or by using ticket vending machines (TVMs) provided.

It was observed that many of these passengers were boarding at stations with both ticket offices and TVMs, but at times when only the TVMs were available. This clearly has an impact on irregularity rates.

As an example, during the survey there were a large number of passengers on Glasgow-Edinburgh Express services on Sunday travelling from Polmont and Falkirk High, where ticket offices are closed for part or all of the day, but TVMs are available and were operational during the survey period. If these passengers utilised the station facilities before boarding the train service were no longer treated as ticketless travel, this would reduce the overall irregularity rate to 7.12%.

The analysis of pay-on-train passengers demonstrates that the key areas are the Suburban West – Group 1 routes (Glasgow North Electrics, Glasgow South Electrics, Argyle Line, and Motherwell to Cumbernauld) at ungated stations where the irregularity rate is high. Key to note is that every percentage point reduction in the irregularity rate of this group improves the overall irregularity rate

by 0.4 percentage points (e.g. achieving an irregularity rate of 6% rather than 13% on this group would reduce the overall rate from 8.5% to 5.5%).

Similarly, focusing on this service group will have a beneficial effect on revenue-at-risk. Stations on the Glasgow-Edinburgh express line without ticket gates should also be a key target, given the amount of revenue on this particular service group.

In the absence of any form of penalty fare mechanism, marketing campaigns to encourage passengers to 'Buy Before You Board' which make clear the facilities available at stations (such as ticket offices and the availability of TVMs), as well as informing passengers of any savings that can be made through buying tickets prior to boarding via the ScotRail website or app, can only be of benefit.

Action Plan

Revenue protection activity will be carried out in alignment with all the activities and functions provided by frontline and back office staff. This includes Customer Service Delivery, Safe and Secure Environments and Franchise Delivery.

The objective of the revenue protection plan is to minimize ticketless travel and fare evasion in a way that is consistent with.

- Maximizing Patronage
- Delivering Value for Money in the use of Resources
- Enhancing the Customer Experience
- Promote New Ticketing & Retailing Options
- Ensure Continuous Improvement

Phil Campbell
Head of Revenue Protection